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AMPUTATION AT THE KNEE-JOINT.

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AMPUTATION, or, more properly speaking, disarticulation at the knee-joint, is an operation which was resorted to many years ago, but has been regarded with distrust by surgeons of the present day, until attempts were made to revive it by Mr. Syme, of England, in an article published by him in 1845, and later by Drs. Markoe and Stephen Smith of New York, and Dr. Brinton, of Philadelphia, by whose efforts it has come to be regarded at the present time as one of the established operations in surgery.

This operation is said to have been performed several times in the 17th and 18th centuries, but very little was known about it until revived by Velpeau, who, in 1829, published the records of fourteen cases, thirteen of which were successful. Encouraged by such a record, he was induced to perform it himself, but with very poor success, nearly all of his operations proving fatal; the records of his cases at that time, however, state that the wounds were "plugged with charpie and left to Nature," which treatment resulted in "abscesses, sinuses and death." In consequence of the excessive mortality of Velpeau's cases, surgeons were again prejudiced against the operation, and little more was done or published concerning it until Mr. Syme's essay on "Amputation of the Knee" appeared in 1845, advocating the necessity of avoiding the danger arising from disturbing the medullary membrane of the femur, to the inflammation of which he refers the great mortality in cases of amputation of the thigh. In 1846, Mr. Carden, of England, began to amputate just above the knee, removing from one to two and one-half inches of the condyles of the femur, with very great success.

Influenced by the results obtained by Messrs. Carden and Syme, most of the noted

surgeons of Great Britain followed their example, amputating just above the knee-joint, until, in 1857, Mr. Lane introduced into England the operation of disarticulation at the knee-joint proper, although it had previously been done once in Glasgow. Mr. Lane advocated it as being less fatal, and leaving a better stump than amputation through the condyles. Since 1857, this operation has been adopted by Sir Wm. Fergusson, Messrs. Coulson, Pollock, and other noted surgeons in Great Britain, and has also been warmly advocated by Drs. Markoe, Brinton and Smith, as above stated.

A distinction is drawn by Dr. Brinton between amputations at the *knee-joint* and at the *knee*, the former being pure disarticulations, the femur remaining intact, or at most only a very thin slice removed when the articular cartilage is diseased, while the latter (as Carden's and Syme's operations) are rather amputations just above the knee-joint, since from one to two and one-half inches of the femur are removed, and the patella generally dissected out.

As with all other amputations, especially in the lower extremity, many methods have been devised for performing it. The same incisions may be made for forming the flaps in disarticulating the leg at the knee-joint, as in amputating in the continuity of the bones, and in the majority of cases, perhaps, it makes but little difference which method is employed, provided that plenty of skin is obtained to cover the large end of the femur without any tension of the flaps. There is, however, a preference, as will be shown below. The methods which have been used are the circular; the method by lateral flaps; by a long anterior flap, which is called "Carden's" operation when a section of the condyles is made; by a long posterior flap with or without section of the condyles, which, in the former case, is called "Syme's" operation; by a long anterior and a short posterior flap; and by a combination of the long anterior and lateral flaps, as recommended by Dr. Stephen Smith, of New York.

There are, of course, many cases in which the surgeon is unable to select any special method of cutting the flaps, but must make them of whatever sound skin he can find, as in cases of accident requiring amputation, or of malignant growths involving the skin.

The indication of the very first importance is to have very abundant flaps, so that the extensive surface of the condyles and the articular cartilage may be amply and easily covered, else the cartilage will be exposed by sloughing of a portion of the flaps on account of the tension requisite to bring the cut surfaces into apposition, or by retraction of the flaps, which always takes place during the process of healing. Another point to be considered in the formation of the flaps of a knee-joint amputation especially is, that the bearing of the stump upon the artificial limb is directly upon the articular surface of the condyles, therefore no cicatricial tissue should be allowed to intervene between that surface and the artificial limb if it can possibly be prevented. A third consideration in any amputation as well as in that at the knee-joint is good drainage. And regard must be had as to the nourishment of the flap, with a view to prevent its sloughing if possible.

The operations of Carden and Syme are objectionable, since section of the femur is entirely unnecessary unless there is a scantiness of the flaps.

The circular method offers, perhaps, less advantages than any of the others, for although its supply of blood may be greater than that of any of the other forms of flaps, a pocket would be formed which would retain all the pus gravitating into it, and the cicatrix would fall upon some point of direct support.

The lateral flaps, although being large, well nourished, and offering good drainage, are objectionable, since the cicatrix is certain to fall directly over the face of the stump.

The long posterior flap is open to many objections. In the first place, a larger pocket for the gravitation of pus would be formed, than by any other method. It involves the section of a large mass of muscles which increases the shock of the operation, gives rise to a large suppurating surface, and seriously interferes with the accurate adjustment of the flaps; and large nerves which must be divided in the flap may become the source of pain by being brought directly over the face of the stump, and consequently liable to pressure, or by

becoming involved in the cicatricial tissue. Moreover, by its weight and by its tendency to retract, it is liable to fall away and interfere with union by first intention, even if it does not expose the articular cartilage of the femur. It also requires that the ligatures should traverse a long distance before emerging from between the flaps.

The long anterior flap is preferred by most surgeons as the one which, when combined with a short posterior one, best fulfils all the necessary requirements, and offers the fewest objections. It must be made very long in order to amply cover the bone, and bring the cicatrix behind the face of the stump; consequently its free edge is liable to be poorly nourished and to slough. To guard against this as much as possible, as well as to assist in covering the bone, the base of the flap should be very wide, the incision commencing and ending from one to two inches behind the most posterior border of the condyles. This incision should extend down the anterior surface of the leg from three to four inches below the tubercle of the tibia. Thus the incision is in the most dependent part of the stump, allowing free exit for the discharge, and bringing the resulting cicatrix entirely behind the face of the stump. Moreover, all of the ligatures required are of the popliteal vessels, and consequently need not be brought in contact with the articular surface of the condyles at all. The object of the short posterior flap is to compensate in a measure for sloughing of the extremity of the anterior flap, and to lessen the chance of tension by retraction.

Dr. Stephen Smith, of New York, has devised a new method, which combines the long anterior and lateral flap methods, and has termed it "Amputation by Modified Lateral Flaps." His incision commences one inch below the tubercle of the tibia, extending downward and forward until it reaches the under surface of the leg, when it is made to curve toward the median line behind, and is then carried directly upward to the centre of the articulation. This incision has its counterpart upon the other side. The flaps are then dissected up, that upon the inner one having been made a little longer than the outer one on account of the greater length of the internal condyle. He claims for this flap less liability to slough than the long anterior one, a perfectly smooth covering for the face of the stump, and no point of contact between the cicatrix and the artificial limb, since the former sinks into the intercondyloid notch behind. This method, therefore, has all of

the advantages of the long anterior flap, and has very much diminished the danger of sloughing, a point of no small consideration.

In disarticulating at the knee-joint, care should be taken not to wound the articular cartilage of the femur, unless it is so much diseased that it must be removed. The inter-articular cartilages should be removed with the tibia. In making the posterior flap from within outwards, the position of the head of the fibula must be remembered, lest it interfere with the progress of the knife; it is best, however, to dissect up the posterior flap before dividing the muscles, because including a large mass of muscle in the flap, as before stated, increases the shock, the suppuration, and the liability to hæmorrhage, besides interfering with the accurate approximation of the flaps.

The articular cartilage of the femur should in no wise be interfered with, unless it is diseased, in which case it is only necessary to remove the diseased portion by sawing off a very thin slice of the condyles, or, if the disease is very limited, removing it with gouge forceps. For, the removal of any portion of the femur only increases the shock, and opens the way to the medullary canal by exposing the cancellous structure, thus rendering the patient liable to suffer from any of the dangerous sequelæ of inflammation of the medulla, such as osteomyelitis, a fertile source of pyæmia. No dangerous symptoms have ever arisen which could be directly traced to the inflammation of the synovial membrane covering the articular surface of the femur. Indeed, when the articular cartilage is exposed by sloughing of the flap, no dangerous symptoms ensue; the exposed portion becomes necrosed, exfoliates *en masse*, and its place is filled by healthy granulations, or it assumes a grayish aspect and gradually disappears. In either case, the necrosed cartilage is separated in about three weeks. Thus it is only in cases of amputation for disease of the knee-joint, or in injuries involving the end of the femur, that necessity for interfering with the articular surface of the femur will arise.

The same rules are applicable to the removal of the patella, which should be excised only when diseased. Indeed, not always then, for Dr. Markoe reports one case in which the patella was left because it was firmly adherent, and the patient recovered with an excellent stump. The great danger arising from the removal of the patella is that by dividing the fascia lata of the

thigh, pus will have an opportunity to burrow beneath it among the muscles, thus rendering incisions in the thigh necessary, and convalescence protracted.

The treatment of the stump after the operation differs in no way from that of any stump, except that the great tendency of the flaps to retract must be counteracted, unless there be a great redundancy. This can be effected by means of strips of adhesive plaster, the free ends of which can be fastened to a circular piece of wood, to which is attached a weight of from two to four pounds, the cord passing over a pulley at the foot of the bed. (The apparatus known at the Massachusetts General Hospital as the "Strawberry-box extension.") If a long anterior flap is made, great care must be taken not to allow any pressure to be brought to bear upon it, owing to the ease with which its extremity sloughs. Pus, when pent up, must be set free at once. This is liable to result from inflammation of the sheaths of the hamstring tendons, which is very rapid and leads to suppuration in from two to five days; it may be at once recognized by the great swelling, tenderness, pain and constitutional disturbance which it occasions. If the pus is not evacuated early, it will burrow up the thigh.

The advantages which amputation at the knee-joint has over that of the thigh are—

1st. That it is vastly less dangerous to life, the mortality being much less, as will be seen by the statistics given below. Prof. Syme states that the mortality after amputation of the thigh is from 50 to 80 per cent., which, he affirms, is directly traceable to the division of the femur, the compact tissue of which is very liable to exfoliate, and its lining membrane being very extensive and vascular is very apt to inflame. Moreover, there is less shock and less hæmorrhage. And it is almost an axiom in surgery that the removal of every additional inch from a limb diminishes the patient's chance for recovery.

2d. The better character of the resulting stump over that left after amputation of the thigh. It is stronger and more fit for locomotion, since the attachment of those muscles concerned in moving the limb are not divided. It is also more capable to bear weight and endure exertion, since the articular surface of the condyles is a healthy surface, and one accustomed to bear the weight of the body. It is a much less painful wound, the patient being able to raise and lower the stump for the removal and application of dressings, whereas the dressing of a thigh-stump is one of the most

painful manipulations in surgery. In walking upon a knee-joint stump, the gait is like that of one with an ankylosed knee, the motion being forward and backward only, and not lateral.

3d. There is much less opportunity for pus to burrow up the thigh, because no muscular interspaces are exposed, there being no muscles divided except the heads of the gastrocnemius.

The principal objection which has been raised against the operation is the danger which must arise from the inflammation of so extensive a synovial membrane as that of the knee-joint. Practically this objection has no weight, since no bad symptoms have ever arisen which could be traced to this cause; and, theoretically, it is invalid, since the danger in synovitis arises from the extent of the membrane, the motion of the joint, and the tension produced by the inflammation and effusion in a closed cavity, all of which causes are very much diminished, or removed entirely, by opening the articulation in performing the operation.

The wound should be made perfectly dry before being closed, on account of the secondary hemorrhage which sometimes takes place from the azygos and inferior articular arteries, and from the sural when a large mass of the gastrocnemius has been included in the posterior flap. Hemorrhage is liable to occur from the popliteal vein, which should also be ligated.

Amputation at the knee-joint may be done in almost all cases in which it was formerly customary to amputate the thigh in the lower third, provided that sufficient healthy skin can be obtained for an ample flap. Such cases are:—1st, Chronic diseases or abscess of the knee-joint. 2d, Compound comminuted fractures of the leg. 3d, Gun-shot fractures in the vicinity of, or involving, the knee. 4th, Gangrene of the leg resulting from injury to the great vessels and nerves. 5th, Chronic diseases of the bones. 6th, Tumors of the leg.

As to the mortality after disarticulation at the knee in comparison with that after amputation of the thigh, statistics show a difference greatly in favor of the knee-joint operation. Dr. Brinton has collected records of 164 amputations at the knee-joint in civil practice. Of these, 53 died, showing a mortality of 32.3 per cent. In the Surgeon-General's office at Washington are recorded 211 amputations at the knee-joint, of which 106 were fatal, or 50.2 per cent.; whereas the mortality after amputation of the thigh is set down by Mr. Syme at 50 to 80 per cent. That in the Paris hospitals

from 1850 to 1861 was 52.7 per cent., and Dr. Gross gives as the mortality rate for 164 thigh amputations in American hospitals 41.4 per cent. The mortality of thigh amputations in American military practice during the late war was 64.43 per cent., which was 14.2 per cent. greater than that for knee-joint amputations.

Tabular records of 16 cases of knee-joint amputation performed at the Massachusetts General Hospital, have been published by Dr. James R. Chadwick among his statistics of "Amputations at the Massachusetts General Hospital" (*vide* Tables 13 and 14, pp. xii. and xiii., Supplement to Boston Medical and Surgical Journal, Vol. IX., No. 1). By these tables it will be seen that the mortality after knee-joint amputations at this Hospital has been 43.75 per cent., a ratio which is less than the average death rate after thigh amputations, although it compares unfavorably with the extraordinarily small mortality rate after thigh amputations at the same Hospital. The value of statistics, however, increases with the number of cases which they include; and if we add the above 16 cases to the 164 cases which Dr. Brinton has collected, the mortality rate of 180 cases will be found to be 33.3 per cent., as may be seen by reference to the tables given by Dr. Brinton in *The American Journal of the Medical Sciences*, April, 1868.

TABLE I.—Results of American Amputations at the Knee-joint in Civil Practice.

	Cases.	Recov.	Deaths.	Percent.
Prim. amput. after accident	50	28	22	44
Sec. " " "	31	18	13	42
" " " for disease	30	25	5	16.66
Cause and period undetermined	6	6		
Total	117	77	40	34.19

TABLE II.—Results of Foreign Amputations at the Knee-joint in Civil Practice.

	Cases.	Recov.	Deaths.	Percent.
Prim. amput. after accident	9	6	3	33.33
Sec. " " "	6	5	1	16.66
" " " for disease	32	23	9	28.75
Total	47	34	13	27.65



TABLE III.—Aggregate Results of American and Foreign Amputations at the Knee-joint.

	Cases.	Recov.	Deaths.	Percent.
Prim. amput. after accident	59	34	25	42-37
Sec. " " "	37	23	14	37-83
" " for disease	62	48	14	22-58
Cause and period undetermined	6	6		
Total	164	111	53	32-31

If the sixteen cases referred to above be added to Dr. Brinton's statistics, his Tables I. and III. will read as follows:—

TABLE I.

	Cases.	Recov.	Deaths.	Percent.
Prim. amput. after accident	55	30	25	45-45
Sec. " " "	31	18	13	41-93
" " for disease	41	32	9	21-95
Cause and period undetermined	6	6		
Total	133	86	47	35-33

TABLE III.

	Cases.	Recov.	Deaths.	Percent.
Prim. amput. after accident	64	36	28	43-75
Sec. " " "	37	23	14	37-83
" " for disease	73	55	18	24-65
Cause and period undetermined	6	6		
Total	180	120	60	33-33

# A CASE OF MENORRHAGIA, FOLLOWED BY PELVIC ABSCESS.

Read before the Roxbury Medical Club, Dec. 14, 1871,  
by F. W. Goss, M.D.

FEB. 27, 1871, I was called to see Mrs. B., widow, æt. 47. The following is her history. She is the mother of three children, the last being 15 years of age. She states that since the birth of her second child, twenty-three years ago, she has had some uterine trouble, causing a good deal of backache and pain in the pelvic region, preventing her from walking any great distance. During the past year menstruation has been rather irregular in its periods, and at times somewhat profuse—symptoms which she supposed attributable to approaching cessation of that function—but there has been no prolonged period of amenorrhœa till recently.

Twelve weeks ago, menstruation ceased and did not appear for nine weeks; three

weeks ago it reappeared and has continued up to the present time. For the past three days she has been flowing very freely, and begins to feel exhausted from the continued hæmorrhage. Has had no pain or tenderness in uterine region.

I ordered ergot and gallic acid, together with rest in bed. These remedies not seeming to decrease the flow, the next day infusion of digitalis was prescribed. On the morning of March 1st, the discharge still continuing abundant, a tampon was introduced, a vaginal examination having failed to detect any cause for the continued menorrhagia. The tampon was reapplied twice; the last two times a sponge tent being introduced into the cervix uteri. On the morning of March 3d, the hæmorrhage seemed to have nearly ceased, and the tampon was omitted.

Our patient remained quite comfortable till the evening of the 4th of March, when there was slight tenderness in the hypogastric region and some tympanites. Pulse 100. Pil. opii gr. i. was prescribed, to be repeated every four hours, if needed, and turpentine stupes were applied to the abdomen.

9, A.M., March 5th.—During the night she has had a severe chill, succeeded by feverishness. Now, pulse 128. Tenderness quite marked over uterus and in right iliac region. Wanders somewhat in mind. At 1, P.M., she was seen with Dr. Cotting, who advised a continuance of the opium *p. r. n.*, and fomentations to the abdomen.

March 6th.—General condition much as yesterday. Tenderness most marked in right inguinal region, where are perceptible fullness and resistance to the touch. On vaginal examination, there is a tender nodule posteriorly and to the right of the uterus. The resistance and fullness in the right inguinal region continued to become more defined. There was scarcely any vaginal discharge. Posteriorly and to the right of the uterus there was increasing fullness and tenderness. On the morning of the 11th the patient continued to have chills. Pulse 124. Abdomen was somewhat less tender, but the resisting mass in the right groin remained. In the posterior *cul-de-sac* of the vagina, filling it and projecting from it, was a mass, œdematous at its tip, pushing the os and cervix uteri forward and under the pubes. Satisfied that a pelvic abscess had formed, and that it was apparently pointing in the vagina posteriorly to the uterus, the question arose whether to leave it to evacuate itself spontaneously, or to open it artificially at the projecting

point. I was inclined to the latter opinion; for although it seemed that nature would in time accomplish the opening in the favorable position in which the abscess was pointing, yet it is well known that she sometimes disappoints us, and the discharge takes place into some unfavorable locality, as the rectum or the bladder. Dr. Sinclair was called in consultation, and agreed as to the propriety of making an exploratory incision at the prominent point. Pus immediately issued from the minute incision which he made, and the cut being enlarged, some twenty-four fluid ounces of fetid pus, mingled with a little blood, were discharged. After evacuation, a sound could be passed several inches in every direction into the sac of the abscess.

It was determined to make use of vaginal injections of a weak solution of carbolic acid twice a day, and also to frequently wash out the sac of the abscess with the same solution. Tonics and nourishing diet were prescribed.

The patient began to improve and continued to do so for a time. The discharge of pus became less in amount, without any return of the hæmorrhage. After a time, however, she became more feeble and the purulent discharge more abundant, owing, perhaps, to the want of proper nursing, to confinement in a small, poorly ventilated room, in addition to excessive anxiety for her daughter, who was brought to death's door by pneumonia. Accordingly, early in May it seemed best to remove her to the more commodious wards of the City Hospital, where she came under the care of Dr. Blake. The treatment there was very similar to that which had been prescribed at her home, the injections into the vagina and sac of the abscess with solution of carbolic acid being continued.

She remained in the hospital about two months—till early in July. At the time of her return to her home the abscess had nearly ceased to discharge, and she had improved in her general condition, though she was yet quite weak and emaciated. Continuance of the previous treatment for a short time resulted in the cessation of the purulent discharge. She steadily gained in flesh and strength, and is now about as well as she has been at any time for many years. During the past three or four months the catamenia have recurred at regular intervals.

This case, in its treatment and result, particularly suggests for consideration the mooted question of abstaining from, or re-

sorting to, artificial means for the discharge of pelvic abscesses.

## Reports of Medical Societies.

### RHODE ISLAND MEDICAL SOCIETY.

The quarterly meeting of the Rhode Island Medical Society was held at the rooms of the Franklin Society on Thursday, Dec. 21.

Dr. Geo. L. Collins, President, called the meeting to order, and the records of the last meeting were read by the Secretary, Dr. C. T. Gardner.

The President appointed the following named members delegates to attend the meetings of different State Medical Societies for the year 1872:—

*Maine*—Drs. Bullock, Baker, Newhall.

*New Hampshire*—Drs. Capron, Drury, Garvin.

*Vermont*—Drs. Ballou, Brown, Wiggin.

*Massachusetts*—Drs. King, Ely, Mann.

*Connecticut*—Drs. A. R. Collins, Carr, Harris.

*New York*—Drs. Clapp, Keene, Ham.

*New Jersey*—Drs. Snow, Miller, Leonard.

The President also announced the appointment of the following named members to prepare and read papers at the next quarterly meeting.

Dr. David King, of Newport; Drs. W. O. Brown and C. T. Gardner, of Providence; Dr. James H. Eldredge, of East Greenwich.

Dr. C. T. Gardner, of Providence, reported to the meeting a very interesting case of "Hydatid Degeneration of the Kidneys," in a newly-born child, which occurred in his medical practice, with an exhibition of the diseased kidneys preserved in alcohol. Dr. G. gave a full report of the details of the case, which was the third instance in which it had occurred to the same mother, and some discussion followed the reading of the paper.

Dr. Thomas C. Lawton, of Cranston, reported a very remarkable case of "Extra Uterine Fœtation," which occurred in his practice in Cranston. He gave a very interesting account of the case, in which death occurred July 17, 1871, aged 62 years. A *post-mortem* examination discovered a fœtus at large in the abdomen, which, upon removal, weighed four and a half pounds, and had been considered a movable tumor by nine physicians, which

had been borne by the mother for *twenty-nine years*, and always declared by her while living to be a child.

Dr. S. S. Keene, of Providence, reported a peculiar case of "Poisoning by external application of tincture of aconite root, through a wound in the index finger of the right hand," describing the effects of the poison, and the remedies effectually applied.

Dr. Albert G. Browning of Olneyville, next read a paper upon "Heredity and Hereditary Influences." The theme of the essay was hereditary transmission of physical and moral peculiarities and qualities, and especially of diseases. He also discussed incidentally the theories of Spencer and Darwin on the propagation of species.

Dr. C. W. Parsons, of Providence, then presented and read to the meeting a paper on "The Medical Relations of the Hydrate of Chloral." The paper of Dr. Parsons was long, but an able and exhaustive discussion and presentation of the merits of the new drug as a medicine, and especially a sleep producer.

The President invited remarks upon Dr. Parson's valuable paper, and Drs. O'Leary, Clapp, Caswell, Ballou, Newhall—all spoke of it in very complimentary terms, and gave their experience and methods of using chloral.

Dr. Clapp, of Pawtucket, moved that the paper be referred to the publication committee to be printed. After some general discussion of the subject, at half-past one o'clock a recess was taken to partake of the collation provided by the president.

On reassembling, Dr. Charles H. Fisher, of Scituate, read a paper upon the subject of "The Origin and Nature of Infectious Diseases."

The essay, in short, was an able argument in favor of the germinal theory of infectious diseases and contagion, and showed great familiarity with the most advanced medical investigations and scientific research, in both America and Europe.

The Board of Censors reported that Dr. Charles H. Bogman, of Providence, and Dr. James B. Hanaford, of Warwick, had submitted written applications for admission as Fellows of the Society, with the required recommendations. Upon the recommendation of the Censors, they were both unanimously elected.

On motion, it was voted to hold the next meeting of the Society in March, at the same place, and the Treasurer was instructed to provide a collation at that time at the expense of the Society.

The president read a communication

(which he complimented as a model report, it being all written on a half-sheet of note paper) from a gentleman who has suffered for five years from a discharge in his side after an attack of pleurisy, and expressing the hope of obtaining relief by referring his case to the Medical Society. The communication was received and, after some discussion, was referred to the President.

Dr. Geo. E. Mason, of Providence, exhibited a human stomach diseased with cancer, preserved in alcohol, obtained from a patient who recently died at the Rhode Island Hospital.

Dr. George Capron, of Providence, reported two very interesting obstetrical cases which occurred in his practice, and the subject was discussed by Drs. Clapp, Brown and Garvin.

The President then stated that the meeting was open for general discussion of any of the papers which have been read, and pertinent remarks upon the several subjects that had been presented were made by Drs. Clapp, Garvin, Fisher, Arnold and Brown.

On motion of Dr. Clapp, the thanks of the Society were presented to the authors of the valuable papers that had been read, and copies of the same were requested to be referred to the Publication Committee for printing.

The meeting was then adjourned to meet again in the same place on the third Wednesday in March, at 10 o'clock, A.M.

## Selected Papers.

### ABSCESS OF THE LIVER. EVACUATION BY OPERATION. RECOVERY.

By H. M. STARKLOFF, M.D., Carondelet, South St. Louis.

Mr. H., a German, aged 50 years, had suffered from various troubles for nearly eighteen months, the time since he had arrived in this country. He had been treated repeatedly for malarial troubles during this time. In August he had suffered, judging from his own description of the case, from acute hepatitis, finding no relief.

On examination of the patient, I found him very much emaciated, complaining of constant and increasing pain in the shoulders and back; he was irritable in temper; had capricious appetite, languor, and persistent feverishness; was troubled with night sweats and had hectic fever; pulse

small and rapid; complained of a burning sensation in the skin of the hands and feet; was sad and despondent, convinced that he would die. In fact, he presented all the symptoms indicative of suppurative inflammation of the liver. Besides the above, he complained of a deep-seated pain in the side. On inspecting the locality indicated by him as the place of pain, there was found a well-marked swelling with indurated base extending from the upper border of the seventh rib to a point on a level with the lower border of the tenth rib, and about an inch and a half from the median plane of the body. Upon palpation fluctuation was evident. After this examination, the patient was informed plainly and truly of his condition, and one of two alternatives offered, either to run the extremely precarious risk of waiting for the abscess to point and discharge itself, or to have it at once emptied of its contents by means of the knife and trocar. The patient was perfectly willing to abide by my decision. There were reasonable grounds for believing that an external outlet for the pus was the direction taken by the abscess. Besides, there was a hardened base to the swelling, and tenderness. Picturing to myself the possible consequences of the delay—the risk of rupturing the walls of the abscess by coughing, sneezing or the like, and the laceration of any adhesions which might have formed—made me speak somewhat warmly in favor of opening at once.

Assisted by Dr. Outten, I proceeded with the operation. Having determined as nearly as possible the limits of the abscess, the patient was laid upon his back, the upper part of his body bent forward, and the thighs somewhat flexed upon the abdomen. An incision about two inches in length was made over the abscess, dividing the skin, subcutaneous and adipose tissues, muscles, and aponeuroses. It was my intention to follow the plan of operation as recommended by Dr. Graves, of Meath Hospital, viz.: that an incision should be made through the skin, &c., to within a few lines of the peritoneum, and the opening then plugged up with lint, with a view of inducing adhesion; but feeling the peritoneum puffed out by the fluid behind, I determined at once to puncture and evacuate the contents of the abscess. Prior to evacuation, and desiring to avert danger as much as possible, a curved threaded needle was passed down the sides of the wound through the peritoneum, stitching the peritoneum to both sides of the wound, aiming to prevent the possibility of pus getting within the cavity

of the peritoneum. The patient was then held on the edge of the bed, so that the front of the body was directed downwards towards the floor, as I desired to get the assistance of gravity and pressure, thus compelling a freer flow of the contained matter. A trocar was pushed into the abscess and a thick, greenish pus of ammoniacal odor withdrawn. The canula was then left in the cavity of the abscess, retained in position by adhesive straps, for three days.

The patient living six or eight miles in the country, I was unable to see him daily; but on the day after the opening of the abscess I visited him, and found him in a worse condition than before the operation: pulse small, fluttering, about 100 per minute; skin clammy. The pus escaping was now changed somewhat in color, becoming chocolate, slightly thinner, and flowing freely. Bowels constipated; appetite of but little moment. Patient in a very prostrate condition. Quinine, acids and stimulants were freely administered, and injections of tepid water made to relieve the constipation. This condition of things continued for a week. On Tuesday of the second week his condition was somewhat better; the discharge of pus lessened; skin moist but not clammy; slight appetite; bowels still inactive. From this time on his condition became daily better, so that by the end of the fifth week he had so far recovered that he was enabled to go about; appetite returning; skin moist, normal; the bowels regular, and the discharges natural and properly colored. On Sunday, of the sixth week, he came to my office; there was no discharge of matter, the opening having closed; no pain on pressure, but a little induration of the liver. He expressed himself as feeling perfectly well. Up to this time the liver seems to be acting normally.—*St. Louis Med. and Surg. Journal.*

#### A FULLY MATURED TENIA SOLIUM OR TAPE-WORM EXPELLED FROM A CHILD FIVE DAYS OLD.

By SAMUEL G. ARMOR, M.D.

The natural history of tape-worm parasites has been a subject of fruitful speculation, and, so far as I am aware, the case here reported is quite unique. The *tenia solium*, according to Küchenmeister's investigations, "only occurs in children who partake of hog's meat." Neither he nor Cobbold makes mention of the possibility of a fully-matured *tenia* occurring in infantile peri-



ods of life. And Vogel says, in writing of tape-worm: "They are rarely found in children under one year of age, in nurse-lings probably never." This latter statement is in harmony with the generally-accepted view that "animal food, either raw or partly cooked, is the probable source of the tænia solium."

The theory appears to have been generally accepted heretofore, that the encysted parasites are taken with the food into the stomach, and that the embryo, set free from the covering of the egg by a process of digestion, passes into the intestine, fixes itself to the mucous membrane, and, by a process of budding, produces the long, tape-like series of the articulations, which are finally converted into the full-grown tænia. Whether this be the universally-accepted theory, or not, certain it is that the encysted parasite, found in whatever part of the body it may be, only develops to maturity in the *intestinal canal*. The query at once arises, therefore, How did the *cisticercus*, in the case here reported, gain entrance into the intestinal canal of the new-born infant? for it is difficult to arrive at any other conclusion, from the clinical history of the case, than that the worm was fully matured at the birth of the child.

Without offering any speculations as to how the young tænia gained its embryonic habitat, I merely copy the clinical record of a case which recently occurred in the Long Island Hospital, Brooklyn, N. Y.:

Kate Quinn, aged 24, an Irish servant-girl, of apparent good general health, was admitted to the hospital September 3, 1871. Diagnosis—*parturition* and a *primipara*.

In less than an hour previous to her admission, she gave birth to a well-developed male child in the street, and, having no home, she was at once brought to the hospital.

Sept. 4th.—Mother doing well; child nurses vigorously, and is apparently well.

7th.—Child for the last fourteen hours has refused to nurse, and examination reveals *trismus*, preventing introduction of little finger into its mouth, and touching extremities induces slight tetanic spasms. Ordered mild anodyne, but with no relief.

8th.—Babe seen by Prof. Skene, who, supposing the child was suffering from intestinal irritation from some cause, ordered three one-sixth-grain doses of calomel, to be followed by oil, and at 7, P.M.—some ten hours after taking the first dose of calomel—the infant passed, *per anum*, two segments of what was at once recognized from

its obvious appearance as a *tape-worm*, flat, perceptibly cornuted, and possessed of a slight wabbling motion of a minute's duration. The specimen, carefully picked out of the fecal matter in the babe's diaper, was submitted to different members of the hospital-staff, placed under the microscope, and the diagnosis concurred in that it was well-matured tænia solium.

9th.—Trismus continues; small amount of mother's milk fed by spoon; at 5, P.M., three more segments of worm came away; ordered spts. terebinth, 15 drops in mucilage.

10th.—One more segment voided; trismus remains; spasmodic action from touching extremities less; takes milk from spoon eagerly, but has no power to grasp nipple; repeated spts. terebinth.

11th.—Another segment came away; still makes fruitless attempts to grasp nipple; ordered oil of male fern, 15 drops in mucilage.

12th.—Repeated the oil of fern, to be followed by small doses of castor-oil.

13th.—One more segment passed; suspended medicine for a few days.

18th.—Two one-half-grain doses of calomel ordered at intervals of two hours; soon after the administration of last dose four more segments passed; trismus entirely gone; child nurses well, the mother having an abundant supply of milk; medicine discontinued.

October 18th.—Mother and child still in the hospital; both doing well; the child has passed several segments since last record, but none having the appearance of the head. Child has never taken any nourishment but the mother's milk.

The foregoing is the brief clinical record of the case; as to the facts stated there can be no doubt. The case was carefully and critically watched by Prof. Skene, of the hospital staff, who was on duty, and by T. H. Hutton, M.D., resident physician.

On October 2d, twelve of the segments passed were presented to the Long Island College Hospital Society for examination, and, at their suggestion, B. A. Segur, M.D., a gentleman of skill and experience in the use of the microscope, was appointed to make further examination of the specimens. At a subsequent meeting of the Society, Dr. Segur reported that "the specimens presented to him for examination had the obvious appearance of tænia, and under the microscope, with one-half inch objective, he was able to see the eggs, presenting the same size of joints passed by adults."

The specimens were subsequently presented to the Pathological Section of the Kings County Medical Society.

*Can the mother communicate the germs of the parasite to the fetus in utero? And, if so, how do they gain entrance to the intestinal canal?*

To determine one of the questions, the mother, being still in the hospital, and having fully recovered from her confinement, was, on the 8th of November—about two months after the birth of her child—put upon treatment for tape-worm; although neither previous history nor present condition indicated the presence of tænia. She is an unusually stout Irish girl, of good flesh, good digestion, cheerful disposition, entire freedom from nervous disturbance, always rested well of nights, and never herself suspected the presence of tape-worm. However, for the purpose above indicated, the mother's bowels were thoroughly evacuated, and, while fasting, she was ordered an emulsion of pumpkin-seeds, which she faithfully took for twenty-four hours, at the end of which time she passed over seventy segments of tænia.

This completes the clinical history of a case which throws much doubt upon the present-received theories as to the probable and exclusive source of tænia. That the encysted parasites gain entrance to the stomach and bowels by means of animal food containing the parasitic germs, the experiments of Küchenmeister and others leave no room to doubt. But that they may also gain entrance through the mother to the fetus in utero would appear to be equally well established by the case here reported.

—N. Y. Med. Jour.

#### CARBOLIC ACID IN CHILDREN'S DISEASES.

By N. S. DAVIS, M.D., Chicago.

DURING the last two years, we have prescribed the carbolic acid very often, and in a considerable number of morbid conditions. In the various grades of irritation or morbid sensitiveness of the mucous membranes of the alimentary canal, especially in children, we have found it a very valuable remedy. A few cases will serve to illustrate more fully the application of the remedy than we could convey in any other manner.

CASE I.—A. B., child eight months old, nursing. The bowels had been slightly loose for three or four days, the discharges thinner and more offensive than natural, but not more than three times a day, until

July 3d, 1870, when it began to have active diarrhoea, the discharges being very thin and of a greenish color, accompanied by a prompt rejection of whatever it took into its stomach, either by nursing or drinking. It was not the active vomiting of severe cholera morbus, but that morbid sensitiveness of the stomach that causes rejection of the ingesta and serious diarrhoea. There was no febrile reaction, but rather paleness and coolness of the surface. The mother was directed to let the child nurse often, but only a little at a time, and give it no drinks except one or two teaspoonsful at a time of cold water and mucilage; and the following prescription was given:—

R. Carbolic acid crystals,	gr. iij.
Glycerine,	℥ss.
Camp. tinct. opii,	℥ss.
Water,	℥ij. M.

And give 20 drops every two hours until the stomach and bowels are quiet.

When there have been no evacuations up or down for twelve hours, then extend the intervals between the doses to three hours. Under this treatment the vomiting ceased during the first twelve hours, but moderate diarrhoea continued, and the medicine was also continued at intervals of three hours. On the third day after commencing the treatment there was no vomiting, and only two intestinal evacuations, more healthy in character. The same medicine was continued four times a day for three days longer, when the child appeared well, and treatment was discontinued. During the summer of 1870 we treated more than seventy cases similar to the one just related, embracing children from six months to two years of age, with the same formulae, and nine out of ten speedily recovered. Such of the children as had been weaned were fed on small but frequently repeated doses of a thin porridge, made of sweet milk and wheat flour. In a few instances the medicine appeared to exert no influence over either the vomiting or the diarrhoea, and other remedies were made available. It will be remembered that the cases here alluded to were recent and simple in their nature. The following will illustrate another class of cases of greater severity, and of very frequent occurrence during the months of July, August and September.

CASE II.—July 27th. Called to C. T.'s child, aged 15 months, still nursing. The child had commenced to have moderate diarrhoea, or "summer complaint," as it is termed, during the first week in July, which had continued, with only occasional vomiting when it took too much into its stomach,

until the 24th. It had become pale and thin in flesh, but still most of the time cheerful, and the mother, as is usual in such cases, attributing the looseness to "teething," had used no remedies, except one or two doses of castor oil. During the night of the 24th the child became more restless, the bowels moving every two or three hours, and the stomach promptly rejecting whatever was taken into it. The intestinal discharges were very thin, yellow and offensive. The following day a physician was called, who prescribed suitable doses of anodyne and alterative powders, mustard cataplasms over the epigastrium, and the next day some laxative mixture, sufficient to move the bowels. Almost every dose of medicine, however, was rejected by vomiting, and the original symptoms continued without abatement. When we were called, on the 27th, the child was much emaciated, the countenance haggard, extremities cool, pulse quick and feeble, paroxysms of great restlessness, with intervening somnolency—almost every paroxysm of restlessness ending in a discharge from the bowels of a greenish yellow color, and almost as thin as water, with little specks of mucus in it. There was pretty uniform vomiting within a few moments after nursing or taking any kind of drink. The urinary secretion was very scanty. We advised the mother to let the child nurse only a little at a time, but often, and to give no other drink except teaspoonful doses of ice-cold water, of which it was very fond. For medicine we directed the following:—

R. Carbolic acid crystals, grs. iij.  
Glycerine (pure), ℥ss.  
Water, ℥ijss. M.

And give half a teaspoonful every hour until the vomiting ceases, and the breast milk is retained well.

Also the following:—

R. Nitrous ether, ℥ss.  
Camph. tinct. opii, ℥ss. M.

Give 20 drops in half tablespoonful of sweetened water every three hours, to help allay the irritability of the bowels, and promote more active secretions of the kidneys.

July 28th.—The vomiting has nearly ceased; the evacuations from the bowels are less frequent, but nearly the same in character, and the urine only slightly increased in quantity. Ordered both prescriptions continued, but the solution of carbolic acid only every three hours, making it come alternately with the paregoric and spirits of nitre.

July 29th.—Child nurses well, and retains all it takes into its stomach; countenance

much improved; urine more abundant, but the intestinal discharges continue to occur every three or four hours, and remain thin and pretty copious. Directed the carbolic acid solution to be continued every six hours, and, half way between, one of the following powders, viz.:—

R. Subnit. bismuth, grs. xii.  
Pulv. geranium root, grs. iv.  
Pulv. Doveri, gr. i. M.

Divide into six powders.

Under this treatment the bowels steadily improved, and on the 1st of August the carbolic acid was omitted, and only one powder given each night and morning; and after three days more they were dispensed with altogether, the child needing no further treatment. As already remarked, this case is the representative of a large number that were treated, and in nearly all of which the carbolic acid was of great service in allaying the gastric irritation and vomiting, but in all, or nearly all of which, other remedies were required to aid in restoring a healthy condition to the bowels. In the first stage of active cholera morbus, both in children and adults, we have many times promptly arrested the active symptoms by using the following formula:—

R. Carbolic acid crystals, grs. vi.  
Glycerine, ℥ss.  
Camph. tinct. opii, ℥jss.  
Water, ℥ij. M.

Give to adults one teaspoonful every half-hour or hour until the symptoms are relieved, and doses proportionately less for children. In active dysentery or acute inflammation of any part of the mucous membrane of the alimentary canal, we have found little or no advantage from the use of carbolic acid, but in many cases of chronic dysentery, accompanied by flatulency and gastric irritability, it has afforded much relief when given with paregoric, as in the last formula stated above, and repeated every three, four or six hours.—*Chicago Medical Examiner.*

A METHOD OF APPLYING DRY HEAT AND COLD suggested by Dr. Roberts, of Manchester, consists in the arrangement of a continuous coil of thin rubber tubing on a backing of canvas, to which it is to be cemented. One end of the tube can be connected with an elevated vessel containing water of the temperature desired, and the other end placed in a receiving vessel. The pad is to be applied to the surface the temperature of which it is desirable to modify.—*British Medical Journal.*

# Medical and Surgical Journal.

BOSTON: THURSDAY, JANUARY 4, 1872.

## A NEW VOLUME.

WITH the dawn of the new year, we close the covers of the old volume and open those of the new—the eighty-sixth since the JOURNAL was placed before the medical profession. In doing so, we take the opportunity of tendering to our readers, our medical brethren, and our fellow-Editors, our kindest wishes for a happy and prosperous year. We feel it a privilege, also, to thank those of our friends who have aided us by contributing to our pages the results of their investigations in medical science, and we repeat the invitation, which we have previously given, for the renewal of similar favors from our fellow-practitioners, in whatever part of the country they may reside.

The editor of a journal which is supposed to be one of the exponents of medical science, which is to contain all that is new, interesting and practically useful to be gleaned from the outside medical world, the forerunner as well as the chronicler of the medical mind, has no light duty to perform. Moreover, in a medical community like that of our New England States, the profession is constantly losing, where it should not, a large amount of valuable experience—the interesting cases which, in almost every one's daily work, might furnish materials for a valuable article; our hospital clinics; our society proceedings; and thoughts of a more varied character on the various departments of medical and allied studies. The Editor, therefore, begs your coöperation with him in advancing the interests of the profession, so far as possible, by seizing the opportunities, fugitive in their nature, for so much valuable information; and by writing and placing in his hands for publication, articles, reports, clinics, and other material for the JOURNAL. Only by such assistance can he realize the wish of every reader of the JOURNAL, to find on his table each week a thoroughly valuable medical periodical.

The past year has been filled with inci-

dents of great moment to the medical profession. The advance in medical education, the discussion of important points affecting the status of physicians in all parts of our country, the occurrence of severe epidemics in our own country and abroad, with the opportunities for the study of diseases thus offered, the death of many eminent medical and scientific men, all mark the past year as an important one in the annals of medicine. The coming year is pregnant with new interests, the medical mind is ready to grasp new truths in science, and new methods for alleviating the suffering of the human race; new facts will constantly be brought to light which will, each and all, take their part in elevating and improving the position of the profession. It will be the aim of the Editor to bring all such matters of interest before the readers of the JOURNAL in such a manner as shall merit their approbation.

In entering on a new volume of the JOURNAL, we have associated with ourselves Dr. F. W. DRAPER, a gentleman personally well known to the profession in Boston as being an intelligent and capable physician, and thoroughly devoted to the best interests of the profession. During the past year, he has rendered the Editor material assistance in reporting the proceedings of societies, making translations, &c. He is, perhaps, best known to the profession in general by the faithful work he has accomplished in connection with the reports of the State Board of Health.

## THE REPORT OF THE SURGEON GENERAL OF MASSACHUSETTS.

THE Surgeon General of Massachusetts has transmitted to His Excellency, Gov. Claflin, the annual report of the Department under his charge.

After alluding to the operations of his Department during the past year, and the manner in which he has discharged the various trusts imposed upon him by law, Dr. Dale concludes his report as follows:—

Herewith, I have the honor to present for your Excellency's information, the report of Col. Yorick G. Hurd, Medical Director of the Division, volunteer force of the State.



An inspection of the sanitary condition of the several camps authorized by law, shows, so far as the duty of the Medical Staff was concerned, the same gratifying results as in former years.

The medical inspection of the Independent Corps of Cadets at Nahant was, by the order of the Commander-in-Chief, made by the Surgeon General. In this connection, permit me to remind your Excellency that the surgeon of this command, Major B. Joy Jeffries, was the first surgeon examined after the reorganization of the Militia under Sec. 32, Chapter 219 of the Acts of 1866, which is as follows:—

"No surgeon or assistant surgeon shall be commissioned until he shall have furnished satisfactory evidence to the Commander-in-Chief that he is competent to perform the duties of his office."

Although satisfied of the ample qualifications of this officer for this post by official connection with him in the various positions he filled most creditably during the war, I could have complied with the requirements of law and furnished to the Commander-in-Chief satisfactory evidence of his competency from my own knowledge; but deeming it important that a precedent should be established when distrusting my own judgment or on the occasion of exigencies when it might be the pleasure or duty of the Governor to seek necessary information from other sources, I directed him, by the order of the Commander-in-Chief, to appear before the Medical Commission of Massachusetts, a Board of Examining Surgeons appointed by the late Gov. Andrew, on the order of the Secretary of War. Receiving from this Board a thorough examination and approved by them as competent, his appointment was accordingly recommended.

Thus a precedent was established, and time has shown the propriety of this action.

I have taken opportunity in previous reports presented to express my satisfaction that so many well-trained surgeons who won honorable distinction in the war, and who were examined by this Board prior to receiving their commissions, should consent at considerable sacrifice to enter the volunteer force of the State. I have felt that these well educated men with their experience and observation gave character to the service, and it would be natural for me to resist in every honorable way, so far as any responsibility was placed upon me, any attempt to impair their usefulness, and at all times to oppose the introduction of any element calculated to excite discord and lessen the harmony and good feeling which has characterized this branch of the service.

Whilst a courteous deference should be paid to the opinions of Generals in command and their staff officers, I trust I shall never forget that the private soldier also bears the fatigue and peril of the service. With the recollection of the privation and suffering which many now in the service of the State experienced in camp, hospital or rebel prison, I should be false to my oath as well as unmindful of the associations of the past, if I failed to afford them, in peace or war, competent surgical skill and proper medical experience.

Under the provisions of Section 66, Acts of 1866, the duties of the head of this department are thus defined: "The Surgeon General, under the direction and supervision of the Commander-in-chief, shall purchase and issue all medical, surgical and hospital supplies, and perform such other duties appertaining to his office as the Commander-in-chief shall from time to time direct." It will thus be seen that the amount of responsibility placed upon this officer is not of an extraordinary character, so far as the medical supervision of the volunteer force of the State is concerned, and the performance of these duties requires but little time and a small appropriation.

The office would have been an honorary one at the close of the war had not successive legislatures by wise and humane legislation imposed upon me other duties which, if performed promptly and conscientiously, fully occupy my time.

I respectfully ask the attention of your Excellency to the valuable suggestions made by Lieut.-Col. Ingalls, Medical Director 1st Brigade, as confirmatory of the views of the medical staff, in regard to the efficiency of the troops, so far as their physical condition is concerned, when they are in the service of the State.

I cordially concur with Col. Hurd, Medical Director of the Division, in the closing remarks of his valuable report.

"It gives me pleasure to be able to assure you that the Medical Staff of the Volunteer Militia are unremitting in their efforts to promote the efficiency of the service and sustain unimpaired the honor of the profession and the reputation won by Massachusetts Medical Officers in the field.

"By the resignation of Medical Director Stedman of the First Brigade, the same loses a valuable and efficient officer. Courteous, energetic, possessed of rare executive qualities, his duties were always promptly, faithfully and skilfully performed."

The vacancy occasioned by the resigna-

tion of this officer has not yet been filled, though the duties have been satisfactorily performed by Surgeon White, 1st Regt. Mass. Vol., acting Medical Director.

Recalling your Excellency's attention to my resignation, placed in your hands on the 21st of January, 1870, I again express my cheerful readiness to retire from the duties of this position. Your Excellency is able to judge whether I have obeyed promptly the orders of my superior officers as well as those prescribed by law through the action of successive legislatures.

In taking official leave of your Excellency, I desire to add that it has been my good fortune, in the discharge of the severe duties imposed on me since the 16th day of April, 1861, to have served under Chief Magistrates distinguished for loyalty and devotion to the public service. I trust it will not be presumptuous in me to further remark that each and all of them have also believed that to sustain a high standard of medical science in this Commonwealth was equally a duty, and none have been more conspicuous in this respect than your Excellency.

With a grateful remembrance of your kindness to me, both personally and officially, I remain, with high respect, your obedient servant,

WM. J. DALE,  
Surgeon-General.

**PHYSICIAN'S DISPENSARY—DIVIDED MEDICINES.**—We have been furnished by the proprietors with a neat little pocket *etuis*, containing twenty-four samples of the "Divided Medicines," noticed by us some time ago. If the squares actually contain the medicines they are said to, and are found to be uniform in character, this method of preparing medicines will be found a very handy one for country practitioners and others who carry their own medicines.

**VACCINATION.**—Our City Physician calls the attention of all good citizens to the importance of vaccination at the present time, when smallpox has shown itself so prevalent in other places, although Boston is, thus far, comparatively free from the disease. The immunity is not likely to continue, if the unprotected portion of the population do not take the means, which science offers, to protect itself. The subject is one which is of importance at this time, and every physician should encourage per-

fect protection among the members of his clientele.

**AMPUTATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.**—We place before our readers in an appendix to this number of the JOURNAL a series of tables containing the results of about 700 amputations performed at the Massachusetts General Hospital, which cannot fail of proving both interesting and valuable.

**STONE IN THE BLADDER, WITH A NUCLEUS OF BONE.** BY B. B. LEONARD, M.D., West Liberty, Ohio.—*History.* About 7 years ago, F. H., then 8 years old, had periostitis, with disease of the femur near the trochanter minor. The case was neglected, and exfoliation of the bone was the ultimate result. In process of time the external openings healed, and the lad made little complaint. Three years ago he became unable to retain urine, and it escaped by a constant dribbling, but he did not complain of much pain. In this condition he continued until March last, when he came under my care, and, suspecting the existence of stone, I made several attempts to discover its presence. In April, I had made for the purpose a sound of more than ordinary curve, with which I detected a large stone, almost entirely encysted in the anterior wall and upper fundus of the bladder. Having prepared the system for the necessary operation, and assisted by Drs. Jones, Pearce, Cretcher, and others, I proceeded, in the manner described by Cheselden, to remove the calculus. On reaching the offending body, I found it firmly imbedded in the wall of the bladder, and almost covered with firm membrane. So firm and strong were the adhesions that much force was required to dislodge the calculus, which was too large for removal intact. Crushing was immediately effected, and fragments weighing *three and a half* ounces removed.

When the staff was withdrawn—which was done with difficulty—a fragment of bone, half an inch long and three lines wide, was found lodged in the groove. This fact gave rise to the suspicion that fragments of exfoliated bone from the femur had penetrated the bladder and formed a nucleus around which the calcareous deposit had accumulated, and an examination of the fragments revealed the fact. The lad made a good recovery, and in seven weeks was able to resume day labor.—*Cincinnati Lancet and Observer.*

**CESAREAN SECTION AFTER THE DEATH OF THE MOTHER, WITH THE PRESERVATION OF THE CHILD.** By M. MOLINIERE, Interne of Necker Hospital, Paris.

Rosalie B., lacemaker, aged 25, entered the Necker Hospital, ward St. Eulalie, No. 22, August 29th, 1868. At the moment of her entrance, she could hardly respond vaguely to questions that were addressed to her. She said that she had been suffering for ten days only. She complained of pain in the belly, had a slight cough, frequent diarrhoea, had no eruption on the abdomen—was pregnant, and in the ninth month. Since the commencement of her pregnancy she had had many attacks of convulsions. Eight days after her admission, she had an attack followed by four or five others. These attacks, according to the report of the Sister of Charity, were very violent and resembled epilepsy; the patient was in a state of complete insensibility, and had fallen from her bed repeatedly. The urine had been frequently examined, but no albumen had been discovered.

The 9th of September, she had a final attack, and died half an hour afterwards. The operation should have been performed by my colleague, A. Hybord, interne of the ward, but he was absent, and I being on duty it devolved on me.

Some minutes after death, I incised the abdomen, layer by layer, in the median line, until I arrived at the bag of water, which I opened in the director. The child did not present any sign of life. I made insufflation, mouth to mouth, and also artificial respiration for some time without success. We continued to make artificial respiration, and rubbed the fauces with a feather. It seemed that the child breathed, and soon we had the happiness of hearing it cry. It was a girl, very strong and well formed; she continued to live and was baptized. At the end of some days she was sent to the founding asylum.—*L'Abeille Medicale*, Oct. 14, from *Gazette des Hôpitaux*.

**CAUSE OF THE OCCURRENCE OF LABOR AT THE CLOSE OF THE NINTH MONTH OF UTERO-GESTATION.**—Professor Alexander R. Simpson, in his introductory lecture (*Edinburgh Medical Journal*, December, 1870), gives the following explanation of this:—"Since the true nature of the deciduous membrane came to be fully understood, it was natural to seek in the changes which it undergoes for an explanation of the cause of the occurrence of labor at the close of the ninth month of utero-gestation. The search has

not been fruitless; for it has been found that in the natural course of development the decidual membrane at this period has undergone a degree of fatty degeneration which has brought it to the last stage of its existence, when it would either require to be melted down and absorbed, or be thrown off as a foreign substance. The same change occurs in it at an earlier date, if through some disease an end be put to the life of the fœtus, and in such a case expulsion of the dead child does not take place until the time has been given for the degeneration to occur in the decidua, which leads to its being loosened from the uterine parietes and reduced to the condition of a foreign body. The observation of this phenomenon has led by a beautiful induction to the employment of the simplest, safest and surest means of bringing on labor by imitating the process of nature and producing an artificial separation of the membrane from the interior of the uterus in those cases where, to save the life of the child and to lessen the mother's risk, it is found needful to induce the labor prematurely.—*Med. News and Library*.

**CARBOLIZED ATMOSPHERE IN THE TREATMENT OF BLOOD-POISONING.**—In the London *Practitioner* for January, Dr. John Wood commends very strongly a new method of using carbolic acid, and reports two cases of severe traumatic erysipelas and one of pyæmia, in which he thinks recovery was largely attributable to the method of employment. To the cradle for keeping the bedclothes off the affected part, and to various projecting portions of the bed, he hangs little muslin bags containing a powder saturated with carbolic acid. In this way he saturates the atmosphere about the patient and the wound with the vapor of carbolic acid, and produces constitutional effects without disturbing digestion. In the pyæmic case, the breath and urine were very strongly impregnated with the acid, and the latter for a week had the characteristic slate-colored film and deposit. This deposit was analyzed, and found to be identical with blue indigo, and, therefore, was probably formed by a transformation of the yellow indigo of the excretion. The pyæmia followed a wound of the right hand. The case was remarkable for the complete and rapid recovery of the patient, with a stiff knee-joint, after the total necrosis and removal of the patella through a free opening for the evacuation of the pyæmic abscess of the joint.—*Philadelphia Medical Times*.

## Medical Miscellany.

**MUSEUM OF DERMATOLOGY.**—Physicians are cordially invited to inspect, at No. 24 Charles St., from 1 to 3, P.M., daily, a large recent addition to the Museum of Dermatology forming for the Harvard Medical School.

**THE CHILDRENS' HOSPITAL.**—At the annual meeting of the Corporation of this institution, held on the 28th ult., at 21 Sears Building, the following gentlemen were elected officers for the ensuing year:—

President, Nathaniel Thayer. Vice President, Geo. T. Bigelow. Treasurer, John G. Wetherell. Secretary, Francis H. Brown. Managers, Chandler Robbins, Albert Fearing, N. H. Emmons, Charles Faulkner, Robert C. Winthrop, William Ingalls, Charles H. Fiske, Samuel A. Green, Isaac Thacher, Jere. Abbott, George D. Howe.

**THE DENTAL COSMOS.**—We are fortunate in numbering among our exchanges several excellent dental journals. Perhaps the best of them is the *Dental Cosmos*, which has now closed its thirteenth volume. At this time its able Editors, Drs. McQuillen and Zeigler, are about to retire. The *Cosmos* will, however, still be ably conducted, and will without doubt continue to be the exponent of all that is new and valuable in a profession that is making rapid strides towards perfection.

**NEW PRIZE.**—The Academy of Medicine of Turin has announced a new prize under the name of the *Premio Bianco*, which will be awarded in the beginning of 1873. The value is 1000 francs; the subject is "Matrimonial Hygiene."

**PROPTER OVARIUM EST MULIER.**—For a very long time the womb was regarded as the chief and central organ in the healthy female genital system. It has been dethroned, and, in the meantime at least, the ovary holds the first place without dispute. The uterus is merely the nest or organ of pregnancy.—Dr. J. M. DUNCAN, in *Edinburgh Medical Journal*.

Our neighbors in the XIIth Ward of Boston will not fail to have their attention attracted by the Advertisement of Messrs. I. B. Patten & Co., old and well-known pharmacists, who have opened a branch store at the corner of Seventh and F Sts.

**SUGGESTIONS TO CORRESPONDENTS AND READERS.**—Articles intended for publication in the JOURNAL must be written plainly and distinctly, on one side of the paper only, properly paged, and with suitable divisions into paragraphs. If so prepared, it is seldom if ever necessary that a proof of the article be sent to the writer. The punctuality required in the issue of a weekly periodical allows little time for proof-alterations or additions. When a proof is sent out, it should be returned to the office promptly, as the press in no case will be kept waiting for it.

Anonymous communications will not be published, unless the name and address of the author are entrusted to the Editor.

Accepted articles will generally be inserted in the order in which they are received; this rule will be waived, however, should the nature of the subject or the interest of the Journal require it.

Rejected articles will be returned, if stamps for the requisite postage be sent.

Letters, requiring answer, addressed to the Editor or Publishers for the benefit of the writer, must enclose stamp to ensure a reply.

Original articles, reports of societies, items of medical news, and professional communications of all kinds will be gladly received from members of the profession, wherever resident, so far as they pertain to topics of general interest. In the transactions of societies, the discussions which relate to questions of local importance, reports of business details, debates *in extenso*, and personalities of all kind, will, as a rule, be excluded.

The Editor does not hold himself responsible for the views and opinions expressed in articles published; nor will their publication be considered, in any way, as his endorsement of their sentiments.

**TO CORRESPONDENTS.**—Communications accepted.—Proposed Improvements in Printing and Writing.—A Case of Poisoning by Opium.—A Case showing great tenacity of Life after Gun-shot Injury to the Spinal Cord.

DIED.—At Charleston, Nov. 16th, Dr. Douglass R. Bannan, Surgeon U. S. N.

*Deaths in fifteen Cities and Towns of Massachusetts for the week ending Dec. 30, 1871.*

Cities and Towns.	No. of Deaths.	Prevalent Diseases.
Boston . . . . .	119	Consumption . . . . . 52
Charlestown . . . . .	20	Pneumonia . . . . . 34
Worcester . . . . .	26	Scarlet fever . . . . . 20
Lowell . . . . .	9	Croup and Diphtheria . . . . . 8
Milford . . . . .	1	Typhoid fever . . . . . 5
Chelsea . . . . .	1	
Cambridge . . . . .	15	
Salem . . . . .	15	
Springfield . . . . .	6	
Lynn . . . . .	8	
Fitchburg . . . . .	2	
Taunton . . . . .	2	
Newburyport . . . . .	3	
Fall River . . . . .	17	
Haverhill . . . . .	5	
	233	

Of the deaths from scarlet fever, eight were in Worcester and six in Salem. Boston reports two deaths from smallpox.

GEORGE DERRY, M.D.,  
Secretary of State Board of Health.

**DEATHS IN BOSTON** for the week ending Saturday, Dec. 30th, 119. Males, 68; females, 51. Accident, 2—apoplexy, 1—aneurism, 1—bronchitis, 3—congestion of the brain, 1—disease of the brain, 7—cancer, 2—cyanosis, 2—consumption, 25—convulsions, 3—croup, 1—debility, 4—dropsy of brain, 2—diphtheria, 2—erysipelas, 2—bilious fever, 1—scarlet fever, 2—typhoid fever, 2—disease of heart, 8—homicide, 1—intemperance, 1—disease of the kidneys, 1—congestion of the lungs, 4—inflammation of the lungs, 14—marasmus, 3—old age, 4—pleurisy, 1—premature birth, 3—peritonitis, 1—puerperal disease, 1—pyæmia, 1—scalded, 2—scrofula, 1—smallpox, 2—spina bifida, 1—stomach, 1—suicide, 2—unknown, 4.

Under 5 years of age, 44—between 5 and 20 years, 4—between 20 and 40 years, 32—between 40 and 60 years, 18—above 60 years, 21. Born in the United States, 79—Ireland, 28—other places, 12.



# BOSTON MEDICAL AND SURGICAL JOURNAL.

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## AMPUTATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL, BOSTON, MASS.

Compiled by JAMES R. CHADWICK, M.D.

LATE SURGICAL HOUSE OFFICER.

MAY 1, 1871.

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THE following tables comprise the results of 699 major amputations of the limbs. The larger part have never before been made public. In 1851, Dr. Hayward published a list of the amputations performed in this Hospital up to that date, but with so few details, that in making up the present series it has been found imperatively necessary to refer to the original records in order to obtain all the data bearing upon the cases recorded. No pains have been spared to render the abstract correct and complete.

The results are compared with those obtained, so far as published, in the New-York City Hospital, the Pennsylvania Hospital and the Boston City Hospital.

Of the 699 cases, the result in seven is unknown, either from imperfection in the records, or in consequence of early removal from the Hospital—of course these do not enter into the estimate of mortality.

### EXPLANATION OF TABLES.

"Primary" signifies within 24 hours of the time of the accident.

"Secondary" any time after that period.

"Pathological" includes all amputations for non-traumatic cases.

"Duration" signifies the period from the date of the accident to the date of the operation.

"Length of time" signifies the period from the date of the operation to the date of the discharge.

The fractions  $\frac{1}{3}$ ,  $\frac{2}{3}$ ,  $\frac{3}{3}$ , designate, respectively, the upper, middle and lower thirds of the limb; and  $\frac{1}{2}$ — $\frac{2}{2}$  designate the junction of the upper and middle thirds, &c.

There have been no amputations at the elbow joint, and only two at the wrist joint, which latter have been included in the tables, with the forearm.

As my friend Dr. Wood has already tabulated the amputations at the knee joint, they are, with his permission, incorporated in this paper, together with his deductions from them.

Three amputations at the ankle joint—one by each of the three methods of Roux, Syme and Liston—have been included with those of the leg.

In all fatal cases where the cause of death is not especially stated, it may be attributed to exhaustion, although in a few of these pyæmia was suspected.

**Table 1.**

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Method of Amputation.	Result.	Length of Time.	Details.
1	J. M. Warren	May 16, 1851	Laborer	M. 32	Comp. com. fract. of arm	3 b.	"	Recovery	25 d.	Crushed between rollers; erysipelas.
2	Townsend	Sept. 27, 1851	"	M. 24	"	2 b.	"	"	63 d.	Mutilated by machinery as high as $\frac{3}{4}$ .
3	"	Aug. 15, 1852	Mechanic	M. 21	"	10 b.	"	"	"	R. R. accident; incarcerated up to axilla.
4	"	Sept. 19, 1852	Laborer	M. 29	"	13 b.	"	Death	6 d.	Comp. fracture of scapula and fracture of clavicle.
5	"	Aug. 16, 1855	Mechanic	M. 29	"	13 b.	"	Recovery	192 d.	R. R. accident; comp. fracture of leg; intoxication.
6	"	Aug. 16, 1855	"	M. 29	"	13 b.	"	"	"	"
7	Gay	Aug. 28, 1857	"	M. 28	"	2 b.	"	Death	37 d.	Debrima tremens; sloughing of thigh.
8	"	Aug. 28, 1857	"	M. 28	"	2 b.	"	"	4 d.	Laceration of arm; delirium tremens.
9	"	Nov. 2, 1859	Laborer	M. 32	"	2 b.	"	"	"	R. R. accident; delirium; d. from shock.
10	C. B. Ciglow	Jan. 6, 1860	Machinist	M. 50	"	2 b.	"	Recovery	60 d.	"
11	"	Aug. 22, 1860	Brakeman	M. 32	"	8 b.	"	Death	6 d.	"
12	"	June 29, 1864	Mason	M. 36	"	4 b.	"	"	"	"
13	Hodges	Sept. 3, 1864	Soldier	M. 23	Comp. fracture of arm	2 b.	"	Recovery	52 d.	Premature explosion; contusion of scalp.
14	"	Oct. 10, 1865	Fireman	M. 29	"	2 b.	"	Death	13 d.	Scalp wound; collapse; autop. showed int. injuries.
15	Cabot	Dec. 2, 1870	Photographer	M. 49	"	24 b.	"	Recovery	63 d.	Laceration of abdomen and leg; fracture of ribs, &c.
16	"	Feb. 16, 1871	Engineer	M. 50	Comp. com. fracture of arm	2 b.	"	"	1 d.	Scalp wound; int. injury; d. from collapse.
17	Bislow	Feb. 16, 1871	Photographer	M. 32	"	3 b.	"	"	"	"

R. R. accidents 6, of which 3 were fatal.

Recovered, 7	Deaths from Exhaustion, 5
Died, 8—Total, 15.	“ “ Collapse, 2
Ratio of mortality, 53·32 per cent.	“ “ Shock, 1

### AMPUTATIONS AT SHOULDER JOINT.—TRAUMATIC—SECONDARY. No Cases.

# AMPUTATIONS AT SHOULDER JOINT.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Method of Amputation.	Result.	Length of Time.	Details.
1	Townsend	March 5, 1853	Mechanic	M. 41.	Chronic disease of joint	3 y.	"	Recovery	84 d.	Encephaloid.
2	Bigelow	June 9, 1858	Laborer	M. 47.	Tumor of arm	24 y.	"	"	103 d.	Great burrowing of pus in arm.
3	Gale	Aug. 28, 1858	"	M. 26	Necrosis of humerus	5 w.	"	Death	60 d.	Glenoid cav.; sermion & coracoid processes removed; encephaloid; not quite cleared.
4	Cabot	Dec. 18, 1858	"	M. 26	Tumor of shoulder	1 y.	"	Recovery	8 d.	Clearances of burn; vomiting; head affeared.
5	"	Dec. 30, 1859	Housewife	F. 38	" arm	14 mo.	"	Death	53 d.	Integument removed by belt of machinery.
6	J. M. Ware	April 5, 1860	Child	M. 7	Ulcers of shoulder and arm	24 mo.	"	Recovery	118 d.	Encephaloid; delirium.
7	Guy	April 2, 1860	Wood-candler	M. 13	Ulcers of arm	2 mo.	"	Death	17 d.	Encephaloid; delirium.
8	Bigelow	Jan. 14, 1864	Carpenter	M. 68	Tumor of arm	7 mo.	"	Death	42 d.	Much reduced before op.; pyemia shown at autop.
9	"	Dec. 2, 1867	Shoemaker	M. 17	Necrosis of humerus	8 mo.	"	Recovery	16 d.	Encephaloid; secondary hemorrhage.
10	Guy	Sept. 23, 1869	Slater	M. 30	Tumor of arm	12 y.	"	"	29 d.	Sarcoma facicellatum.
11	Bigelow	Jan. 11, 1871	Farmer	M. 32	"	"	"	"	"	"
Recovered, 8					Deaths from Exhaustion,	1	Causes of amputation were			
Died, 3—Total, 11.					" Pyemia	1	Tumors			
Ratio of mortality, 37.27 per cent.					" Cerebral lesion,	1	Ulcers			
					"		" Necroses			
					"		" Chr. dis. of joints			

Causes of amputation were	Tumors	Ulcers	Neuroses	Chr. dia. of joints	in 6 cases.
"	"	"	"	"	" 2
"	"	"	"	"	" 2
"	"	"	"	"	" 1

Table 3.

## AMPUTATIONS OF ARM.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation. Method.	Place.	Result.	Length of Time.	Details.
1	Townsend	July 24, 1847	Weaver	M. 45	Comp. com. fract. of arm	6 h.	Circular		Death	4 h.	R. R. accident; reduced by disease & loss of blood.
2	J. M. Warren	April 23, 1848	Laborer	M. 28	" " arm	5 h.	Flap		Recovery	98 d.	Explosion; amputation of other forearm.
3	"	April 29, 1849	Mechanic	M. 27	" " arm	2 h.	"		"	46 d.	R. R. accident; erysipelas.
4	"	April 29, 1851	Laborer	M. 27	" " elbow	2 h.	"		"	29 d.	"
5	Clark	April 28, 1851	School-teacher	M. 35	" " forearm	2 h.	"		"	28 d.	Sloughing of flaps.
6	"	Mar. 23, 1854	Mechanic	M. 36	" " elbow	2 h.	"		"	54 d.	Comminuted fracture of other arm.
7	Townsend	July 17, 1856	Laborer	M. 24	" " forearm	3 h.	Circular		"	32 d.	Intoxication.
8	Cabot	Aug. 18, 1856	Housewife	F. 65	" " elbow	2 h.	"		"	20 d.	"
9	Townsend	Aug. 5, 1857	Mechanic	M. 21	" " forearm	5 h.	"		"	41 d.	R. R. accident; scalp wounds.
10	J. M. Warren	May 29, 1860	Minor	M. 12	" " elbow	2 h.	"		"	47 d.	" amput. of fingers; resection of end of bone
11	Clark	July 13, 1861	Carpenter	M. 60	" " arm	2 h.	Circular		"	75 d.	Sloughing of flaps; death from pyæmia.
12	"	Sept. 3, 1861	Minor	F. 11	" " elbow	2 h.	"		"	41 d.	"
13	"	Sept. 3, 1861	Boiler	F. 11	" " forearm	2 h.	Flap		"	75 d.	Bullet wound.
14	Cabot	July 9, 1862	Widow	F. 44	Comp. dislocation of arm	2 h.	"		"	41 d.	Union by first intention.
15	Hodges	July 14, 1863	Minor	M. 28	" " forearm	3 h.	Flap		"	18 d.	R. R. accident.
16	Clark	Aug. 8, 1863	Plumber	F. 3	" " elbow	3 h.	"		"	31 d.	Gunshot wound.
17	Gay	Aug. 15, 1863	Minor	M. 21	" " forearm	8 h.	Circular		"	22 d.	"
18	"	Sept. 2, 1863	Servant	M. 14	" " forearm	2 h.	"		"	19 d.	"
19	Hodges	Nov. 26, 1863	Minor	M. 16	Laceration of arm	2 h.	Flap		"	96 d.	"
20	Cabot	Nov. 26, 1863	Minor	M. 57	Comp. com. fract. of elbow	2 h.	Circular		"	469 d.	R. R. accident; acute pericarditis
21	Hodges	Dec. 3, 1863	Baker	M. 26	" " arm	2 h.	"		"	9 d.	amput. of leg; d. from collapse.
22	Hodges	Dec. 12, 1864	Laborer	M. 21	" " forearm	2 h.	Flap		"	69 d.	"
23	Cabot	Dec. 12, 1864	Laborer	M. 21	" " forearm	2 h.	"		"	28 d.	Amp. of other forearm; death from pyæmia.
24	Bigelow	Dec. 8, 1864	Brakeman	M. 38	" " arm	4 h.	Circular		"	41 d.	Resection of end of bone six mos. later.
25	Gay	Oct. 20, 1867	Operative Mechanic	M. 23	" " forearm	2 h.	"		"	15 d.	"
26	Cabot	Oct. 20, 1867	Minor	M. 11	" " forearm	2 h.	"		"	91 d.	Comp. com. fract. of fibula; secondary hæmorrh.
27	Hodges	Jan. 11, 1868	Laborer	M. 29	" " arm	2 h.	"		"	34 d.	Delirium tremens; d. from pyæmia.
28	Coolidge	Oct. 16, 1868	Clerk	M. 62	" " elbow	2 h.	"		"	21 d.	R. R. accident; dist. hip; hosp. gang; pleuritis.
29	Hodges	April 9, 1869	Clerk	M. 35	" " forearm	4 h.	"		"	20 d.	Erysipelas.
30	Hodges	July 22, 1869	Carpenter	M. 55	" " arm	4 h.	"		"	20 d.	"
31	Bigelow	Feb. 7, 1870	Freeman	M. 17	" " elbow	3 h.	Circular		"	28 d.	Erysipelas.
32	Hodges	Mar. 11, 1870	Laborer	M. 11	" " forearm	3 h.	"		"	28 d.	"
33	Hodges	May 17, 1870	Painter	M. 17	" " forearm	3 h.	Flap		"	43 d.	"
34	Clark	Dec. 31, 1870	Laborer	M. 24	" " forearm	5 h.	"		"	"	"
35	Cabot	Dec. 20, 1870	Minor	M. 15	Laceration of forearm	5 h.	"		"	"	"
36	Clark	April 6, 1871	Laborer	M. 54	Comp. com. fract. of arm	5 h.	"		"	"	"

Recovered, 29  
Died, 7—Total, 36.  
Ratio of mortality, 19.44 per cent.

R. R. accidents 8, of which 5 were fatal.

## AMPUTATIONS AT THE

Table 4.

## AMPUTATIONS OF ARM.—TRAUMATIC—SECONDARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	Bigelow	May 35, 1847	Laborer	M. 22	Location at elbow	14 d.	Circular	Recovery	86 d.	Gangrene up to elbow before operation.
2	Clark	Jan. 21, 1860	Pieck-packer	F. 16	Comp. dislocation of elbow	41 d.	"	"	25 d.	Fracture of internal condyle, not into joint.
3	Clark	April 24, 1861	Fisherman	M. 21	" " " " " " " "	14 d.	Flap	"	65 d.	" " other forearm; gunpowder explosion.
4	Hodges	Aug. 9, 1864	Soldier	M. 19	" " " " " " " "	2 mo.	Circular	"	14 d.	Ballet-wound.
5	Calot	Oct. 19, 1864	Baker	M. 26	Laceration of arm	21 d.	"	"	21 d.	"
6	Bigelow	Nov. 15, 1864	Brakeman	M. 23	Comp. com. fract. of forearm	2 d.	"	Death	23 d.	R. R. accident; d. from pyemia proved at autopsy.
7	Calot	Dec. 11, 1865	Laborer	M. 35	Fracture of forearm	24 d.	"	"	24 d.	Erysipelas; death from pyemia.
8	Coolidge	Sept. 2, 1870	Laborer	M. 52	Comp. fracture of hands	30 d.	"	"	30 d.	Amputation of fingers.

R. R. accident 1, which was fatal.

Death from Pyemia, 2 Exhaustion, 1

Recovered, 5  
Died, 3—Total, 8. Ratio of mortality, 37.50 per cent.

Table 5.

## AMPUTATIONS OF ARM.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	J. C. Warren	Aug. 9, 1825	Farmer	M. 37	Tumor of forearm	7 y.	Flap	Recovery	42 d.	
2	Townsend	April 11, 1827	"	M. 37	" " " "	7 y.	Flap	"	68 d.	
3	J. C. Warren	June 21, 1829	Spinster	F. 18	Chronic disease of elbow	3 y.	Circular	"	20 d.	Family all phtisical.
4	J. C. Warren	Dec. 24, 1840	Farmer	M. 22	" " " "	8 y.	"	"	21 d.	
5	Bigelow	Sept. 15, 1847	"	M. 60	Tumor of elbow	2 y.	"	"	86 d.	Encephaloid.
6	Clark	Jan. 23, 1851	Domestic	F. 13	Chronic disease of elbow	9 y.	Flap	"	86 d.	Cicatrices of burn.
7	J. M. Warren	Jan. 21, 1851	Shoemaker	M. 28	" " " "	7 mo.	Circular	Death	191 d.	
8	Bigelow	Feb. 11, 1853	Farmer	M. 34	" " " "	9 mo.	"	"	54 d.	Chr. dis. of knee; axillary aneurism; secondary hemorrhage.
9	Calot	Nov. 18, 1853	Grocer	M. 40	" " " "	10 y.	"	"	103 d.	Strumous diathesis; much reduced before op.
10	Calot	Nov. 7, 1857	Domestic	F. 18	Necrosis of elbow	16 y.	"	"	47 d.	Not fully healed, but doing well.
11	J. M. Warren	July 16, 1858	Laborer	M. 50	Tumor of forearm	4 mo.	Flap	Recovery	24 d.	Encephaloid; erysipelas.
12	Clark	Nov. 20, 1858	Teamster	M. 27	Chronic ulcers of arm	7 y.	Circular	"	109 d.	Cicatrices from erysipelas of 7 yrs. ago.
13	Bigelow	Nov. 20, 1858	"	M. 27	" " " "	14 y.	"	"	114 d.	Died 1 year later of phtisis.
14	J. M. Warren	Jan. 28, 1859	Spinster	M. 43	Neuralgia of arm	13 mo.	Flap	"	32 d.	Needle found in contact with nerve in fore finger.
15	Bigelow	Jan. 28, 1859	Shoemaker	F. 32	Series of tumors	13 mo.	Flap	"	32 d.	Several secondary hemorrhages.
16	Bigelow	Feb. 12, 1860	Housewife	F. 56	Tumor of arm	13 mo.	Circular	"	56 d.	Encephaloid; tumor first appeared 8 years ago.
17	Bigelow	Feb. 12, 1860	Housewife	F. 56	Burns of elbow	6 mo.	Flap	"	44 d.	
18	Bigelow	Feb. 10, 1862	Minor	F. 7	Tumor of stump	6 mo.	Circular	"	54 d.	Amput. of forearm 3 yrs. ago for tumor of hand.
19	Gay	Aug. 8, 1862	Farmer	M. 36	Chronic disease of wrist	3 y.	"	"	53 d.	
20	"	Sept. 12, 1862	Soldier	M. 51	Ulcer of stump	6 mo.	Flap	"	67 d.	Primary amput. for ballet wound.
21	Bigelow	Mar. 21, 1863	Clerk	M. 29	Tumor of wrist	6 mo.	Circular	"	24 d.	Medullary cancer.
22	Calot	Nov. 7, 1863	Minor	F. 11	Neuralgia of stump	2 mo.	Flap	"	18 d.	Neuralgia unrelieved 8 yrs. later.
23	"	Nov. 7, 1863	"	M. 21	Neuritis of "	8 y.	Circular	"	37 d.	Amput. of forearm 8 yrs. ago.
24	Bigelow	Dec. 19, 1864	Laborer	F. 28	Anchylosis of elbow	3 y.	Flap	"	45 d.	
25	Hodges	May 19, 1864	Domestic	F. 28	Conical stump	3 y.	"	"	19 d.	Nearly healed.
26	Calot	Feb. 17, 1865	Spinster	M. 40	Tumor of forearm	2 y.	Circular	"	64 d.	Erysipelas.
27	Calot	Feb. 17, 1865	Spinster	M. 31	Anchylosis of elbow	15 y.	"	Death	19 d.	Death from pyemia.
28	Bigelow	Nov. 20, 1865	Housewife	M. 21	Ununited fracture of arm	24 y.	"	"	19 d.	
29	"	April 26, 1867	Leather-splitter	M. 33	Neuralgia of stump	6 mo.	Flap	Recovery	150 d.	
30	Clark	June 3, 1870	Carpenter	M. 36	Tumor of elbow	17 mo.	Circular	"	61 d.	Medullary sarcoma.
31	Bigelow	Jan. 26, 1871	Farmer	M. 32	Tumor of forearm	9 mo.	"	"	25 d.	Myeloid from radius.
32	Calot	Mar. 14, 1871	Domestic	F. 80	Neuralgia of arm	3 y.	Flap	Death	22 d.	

Recovered, 29  
Died, 3—Total, 32. Ratio of mortality, 10.31 per cent.Cause of Amputation: 2 Exhaustion, 3  
5 Tumors of arm, 5 ulcers, 3 cancer, 1 case, Confined stump

Table 6.

## AMPUTATIONS OF FOREARM.—TRAUMATIC—PRIMARY.

Sex  
Age  
Occupation  
Date  
Disease  
Duration  
Amputation  
Result  
Length of Time  
Details



# MASSACHUSETTS GENERAL HOSPITAL.

## AMPUTATIONS OF FOREARM.—TRAUMATIC—PRIMARY.

Table 6.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	Hayward	April 12, 1888	Blacksmith	M. 25	Comp. com. fract. of hand	3 h.	Circular	Recovery	49 d.	Caught in gear-wheel of steam engine.
2	Hayward	Mar. 22, 1889	Blacksmith	M. 25	"	3 h.	Circular	Recovery	71 d.	Plum caught in belt.
3	J. C. Warren	Mar. 12, 1889	Laborer	M. 37	" both of wrist	7 h.	Flap	"	71 d.	R. R. accident; carpo-metacarpal amp. of r. hand.
4	Townsend	May 17, 1889	Minor	M. 15	"	5 h.	Circular	"	77 d.	Fracture and depression of skull, &c.
5	J. M. Warren	Nov. 6, 1882	Laborer	M. 24	Laceration of forearm	2 h.	Flap	Death	34 h.	D. from chloroform adm. for ether by mistake.
6	Clark	May 6, 1884	Minor	M. 6	Comp. com. fract. of hand	2 h.	"	Recovery	21 d.	Hand mangled by circular saw.
7	"	May 9, 1885	Laborer	M. 26	"	2 h.	"	"	52 d.	Premature explosion while blasting.
8	Townsend	Oct. 8, 1885	Mechanic	M. 36	"	14 h.	Circular	"	37 d.	Caught between hand and roller of machine.
9	"	Nov. 8, 1885	Mechanic	M. 36	"	7 h.	Flap	"	32 d.	Explosion of gun.
10	Bigelow	Aug. 28, 1885	Farmer	M. 19	"	7 h.	Flap	"	32 d.	Caught between rollers of machine.
11	Guy	Feb. 24, 1886	Mechanic	M. 21	"	3 h.	Flap	"	43 d.	Explosion of gun.
12	Cabot	July 24, 1887	Minor	M. 23	"	2 h.	Circular	"	3 d.	Explosion of gun; punct. of abd.; d. fr. peritonitis.
13	Townsend	July 4, 1887	Laborer	M. 43	"	2 h.	"	Death	44 d.	Gunpowder explosion; delirium tremens.
14	Guy	Nov. 9, 1881	"	M. 36	" both of hand	2 h.	"	Death	6 d.	R. R. accident; alcoholic habit.
15	Bigelow	July 29, 1883	"	M. 32	"	12 h.	Flap	"	22 d.	"
16	Hodges	Aug. 6, 1884	Blacksmith	M. 50	"	2 h.	Circular	Recovery	45 d.	"
17	"	Jan. 21, 1885	Laborer	M. 27	"	2 h.	Circular	Death	35 d.	Erysipelas.
18	Bigelow	Aug. 24, 1887	Leather-splitter	M. 25	"	4 h.	"	Recovery	18 d.	R. R. accident; secondary hemorrhage.
19	Cabot	Jan. 20, 1888	Brakeman	M. 33	"	2 h.	Flap	"	68 d.	Caught between cylinders.
20	Coillidge	Jan. 20, 1888	Brakeman	M. 24	"	3 h.	Flap	"	42 d.	R. R. accident; erysipelas; abscesses in leg.
21	"	Jan. 20, 1888	Brakeman	M. 24	"	3 h.	Circular	"	42 d.	"
22	"	Jan. 20, 1888	Brakeman	M. 24	"	3 h.	Circular	"	42 d.	"
23	"	Jan. 20, 1888	Brakeman	M. 24	"	3 h.	Circular	"	42 d.	"
24	Coillidge	June 10, 1889	Shoemaker	M. 8	"	4 h.	Flap	Death	33 d.	Premature explosion while blasting.
25	Clark	April 12, 1870	Mechanic	M. 33	"	2 h.	Circular	Death	19 d.	Hands crushed by heel stamper.
26	Clark	Oct. 12, 1870	Minor	M. 33	"	3 h.	Flap	Recovery	18 d.	Double amputation; convulsions.
27	Coillidge	Jan. 7, 1871	Some mason	M. 16	"	4 h.	Flap	"	15 d.	Hand caught in moulding machine.
28	Hodges	Jan. 26, 1871	Some mason	M. 21	"	4 h.	Flap	"	65 d.	Gunshot wound.
29	Cabot	Jan. 26, 1871	Wool-carder	M. 45	"	4 h.	Circular	Death	6 d.	R. R. accident; amp. of five toes and one finger.

Recovered, 22; Died, 7.—Total, 29. Ratio of mortality, 24-13 per cent. Deaths from Exhaustion, 5; Peritonitis, 1; Chloroform, 1. R. R. accidents 8, of which 3 were fatal.

Table 7.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	Hayward	June 27, 1834	Immkeeper	M. 25	Laceration of hands	7 d.	Circular	Death	2 d.	Gunpowder explosion; face burnt; del. tremens.
2	J. C. Warren	April 8, 1836	Laborer	M. 29	Comp. com. fract. of hand	5 d.	"	Recovery	35 d.	Explosion of "not gun.
3	Bigelow	Feb. 22, 1854	Mechanic	M. 51	"	11 d.	"	"	28 d.	Drawbridge fell upon hand.
4	"	Dec. 30, 1854	Seaman	M. 24	Hand burnt and crushed	38 d.	"	"	52 d.	"
5	"	Jan. 20, 1855	Domestic	F. 60	Comp. fract. of radius	14 d.	"	"	28 d.	"
6	Clark	May 18, 1855	Domestic	F. 60	Comp. fract. of wrist	14 d.	"	"	28 d.	"
7	Cabot	June 18, 1855	Blacksmith	M. 21	Contusion of hand	4 d.	Circular	"	116 d.	Fell twelve feet down embankment.
8	Bigelow	Nov. 26, 1863	Shoemaker	M. 24	Comp. com. fract. of forearm	28 d.	Flap	Death	31 d.	Bullet wound; delirium tremens; erysipelas.
9	Cabot	April 26, 1864	Shoemaker	M. 24	Comp. com. fract. of hand	20 d.	Flap	Recovery	60 d.	Bullet wound; del. from pyemia (?)
10	Hodges	April 18, 1865	Cracker-maker	M. 14	"	3 d.	Circular	"	40 d.	Explosion of shot gun.
11	Bigelow	Dec. 28, 1869	Laborer	M. 50	Contusion of hand	3 mo.	Circular	"	27 d.	Hand crushed in kneading machine.
12	Hodges	April 16, 1870	Carpenter	M. 63	Comp. com. fract. of forearm	42 d.	Flap	"	27 d.	" between curs.

Deaths from Exhaustion, 1; Pyemia, 1.

Recovered, 10; Died, 2.—Total, 12. Ratio of mortality, 16-66 per cent.

AMPUTATIONS OF FOREARM.—PATHOLOGICAL.

Table 8.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation. Method.	Result.	Length of Time.	Details.
1	J. C. Warren	Nov. 8, 1834	Minor	F. 14	Necrosis of carpus	18 mo.	Circular	Recovery	18 d.	Kicked by a cow.
2	Townsend	Aug. 6, 1839	Ship-jointer	M. 72	Ulcer of hand	1 y.	"	"	20 d.	After treatment of small tumor by empiric.
3	"	Mar. 14, 1842	Farmer	M. 56	Tumor of hand	30 y.	"	"	14 d.	Osteo-sarcoma; not fully healed.
4	"	May 4, 1843	Shoemaker	M. 14	Necrosis of carpus	10 mo.	"	"	25 d.	"
5	Hayward	Dec. 15, 1848	Housewife	F. 26	Tumor of hand	12 y.	"	"	24 d.	"
6	Bigelow	Jan. 30, 1855	Farmer	M. 47	Necrosis of carpus	3 y.	"	"	20 d.	"
7	Clark	April 2, 1856	Mechanic	M. 25	"	2 y.	"	"	20 d.	"
8	Townsend	Aug. 21, 1858	Dress-maker	F. 31	Tumor of wrist	5 mo.	Flap	"	23 d.	"
9	"	May 21, 1858	Book-agent	F. 33	Caries of carpus	2 y.	"	"	33 d.	"
10	Clark	May 21, 1859	Farmer	M. 39	Necrosis of hand	4 mo.	Flap	"	33 d.	"
11	Bigelow	Dec. 1, 1859	Minor	M. 35	Tumor of hand	1 y.	Circular	"	51 d.	Window fell upon wrist.
12	"	Jan. 19, 1861	Laborer	M. 36	Chronic dis. of wrist-joint	4 mo.	"	"	59 d.	After amputation, stump 2 y. for recurrence.
13	Cabot	Sept. 24, 1861	Laborer	M. 63	Necrosis of carpus	3 y.	"	"	13 d.	Erysipelas.
14	Bigelow	April 11, 1862	Machinist	F. 24	Tumor of forearm	44 y.	"	"	30 d.	Epithelial; sloughing of flaps.
15	Townsend	Aug. 8, 1862	Shoemaker	M. 72	"	3 y.	"	"	58 d.	Following burn; erysipelas.
16	"	Oct. 3, 1862	Laborer	M. 40	Ulcers of forearm	4 mo.	"	"	23 d.	"
17	Bigelow	Dec. 29, 1862	Weaver	M. 50	Tumor of wrist	40 y.	"	"	23 d.	"
18	"	Feb. 11, 1863	Laborer	M. 23	Abscess of hand	2 mo.	"	"	91 d.	Extensive sloughing of flaps.
19	J. M. Warren	Feb. 12, 1863	Carpenter	M. 23	Necrosis of carpus	2 mo.	"	"	27 d.	Ribonunaria; secondary hemorrhages; erysip.
20	Cabot	Feb. 28, 1863	Farmer	M. 30	"	6 mo.	"	"	37 d.	Sloughing of flaps.
21	J. M. Warren	Mar. 23, 1863	Carpenter	M. 62	"	4 mo.	Flap	"	34 d.	Following penknife wound of wrist.
22	"	May 13, 1865	Laborer	M. 62	"	2 y.	Circular	"	21 d.	Pickaxe wound of hand.
23	Clark	May 13, 1865	"	M. 48	"	1 y.	"	"	42 d.	Death from pyæmia, as shown at autopsy.
24	Cabot	Dec. 18, 1865	Cook	M. 53	Abscess of hand	7 wk.	Flap	"	29 d.	"
25	Hodges	Sept. 21, 1867	Fisherman	M. 58	"	6 wk.	Circular	"	34 d.	"
26	"	April 12, 1871	Clerk	M. 32	Tumor of stump	14 y.	Flap	"	"	Primary amp. of hand for horns of 27 y. duration.
27	Clark	April 15, 1871	Semstress	F. 47	Caries of carpus	9 mo.	"	"	"	Bullet wound of wrist.

Recovered, 23  
Died, 4—Total, 27  
Ratio of mortality, 14.81 per cent.

Causes of Amputation were Necrosis in 11 cases,  
Tumors 8  
Diseases 2  
Ulcers 2  
Caries 2  
Chr. dis. of joint 1

AMPUTATIONS AT HIP-JOINT.—TRAUMATIC—PRIMARY AND PATHOLOGICAL.

Table 9.

No.	Operator.	Date.	Occupation.	Sex and Age.	Injury or Disease.	Duration.	Amputation. Method.	Result.	Length of Time.	Details.
1	J. M. Warren	June 19, 1853	Minor	M. ch.	Comp. fract. of thigh	1 h.	"	Death	13 d.	Extensive laceration of hip; d. from exhaustion.
2	"	Mar. 23, 1859	Shoemaker	M. 17	Tumor of thigh	7 mo.	"	Recovery	43 d.	Osteo-sarcoma; not fully healed; return of disease
3	Hodges	May 29, 1863	Clerk	M. 31	" " " " " stump	5 mo.	Flap	"	60 d.	" " " " " in stump and in left breast two yrs. later.

1 Traumatic—Primary amp. with fatal result.  
2 Pathological (Tumors) " favorable result.

1 death from Exhaustion.

Table 10.

AMPUTATIONS OF THIGH.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Injury or Disease.	Duration.	Amputation. Method.	Result.	Length of Time.	Details.
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## AMPUTATIONS OF THIGH.—TRAUMATIC—PRIMARY.

Table 10.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of limb.	Details.
1	J. C. Warren	May 30, 1859	Painter	M. 23	Comp. com. fract. of leg	20 h.	Circular	Death	40 d.	Delirium; pus in wrist and hip joint.
2	Hayward	June 28, 1831	Minor	M. 31	" " " both	12 h.	Flap	Recovery	125 d.	Sloughing of flaps; stump sound in 1852.
3	J. C. Warren	June 2, 1836	Laborer	M. 31	" " " " "	12 h.	Flap	Death	9 h.	R. R. accident; double amp.; d. from collapse.
4	Hayward	Sept. 24, 1837	Painter	M. 27	Comp. fract. of leg	18 h.	Circular	Recovery	6 h.	Died from collapse.
5	J. C. Warren	Nov. 6, 1838	Painter	M. 37	Comp. com. fract. of leg	6 h.	"	Recovery	135 d.	R. R. accident; great loss of blood before op.
6	"	Mar. 6, 1845	Laborer	M. 53	" " " " "	17 h.	Flap	Death	116 d.	Laceration of scalp; del. trem.; d. fr. collapse.
7	J. M. Warren	Apr. 6, 1847	"	M. 30	" " " " "	21 h.	Circular	Recovery	2 d.	R. R. accident; toe on other foot crushed.
8	"	Mar. 31, 1848	Brakeman	M. 30	" " " " "	84 h.	Flap	Death	38 d.	R. R. accident; extensive scalp-wound; d. fr. coll.
9	"	Apr. 17, 1848	Artist	M. 33	Leac. thigh & rup. fem. art.	14 h.	Flap	Recovery	14 d.	Death from shock.
10	Peabody	Nov. 17, 1848	Teamster	M. 37	Comp. com. fract. of thigh	16 h.	Circular	Death	5 d.	R. R. accident; amp. of other leg; d. fr. collapse.
11	J. M. Warren	Apr. 15, 1849	Engineer	M. 40	" " " " "	6 h.	"	Recovery	48 d.	Sloughing of flaps; resection of end of femur.
12	Peabody	Dec. 15, 1849	Laborer	M. 39	" " " " "	24 h.	Circular	Death	77 d.	R. R. accident; amp. of other leg; d. fr. collapse.
13	Bigelow	Aug. 8, 1851	Mechanic	M. 35	" " " " "	3 h.	"	Recovery	67 d.	Cystitis from enlarged prostate gland.
14	Townsend	Nov. 3, 1851	Seaman	M. 64	" " " " "	1 h.	"	Death	29 d.	Sloughing of flaps; contusion about knee.
15	Bigelow	Apr. 10, 1852	Mechanic	M. 25	" " " " "	12 h.	"	Recovery	69 d.	R. R. accident; amp. of other leg; d. fr. collapse.
16	J. M. Warren	July 1, 1852	Laborer	M. 30	" " " " "	3 h.	"	Death	71 d.	Cystitis from enlarged prostate gland.
17	Peabody	Sept. 8, 1852	Laborer	M. 22	" " " " "	12 h.	Flap	Recovery	46 d.	Fracture of jaw and ulna; erysipelas.
18	J. M. Warren	Nov. 27, 1852	Laundress	M. 22	Comp. dislocation at knee	24 h.	Circular	Death	57 d.	R. R. accident; delirium tremens.
19	Bigelow	Feb. 29, 1854	"	M. 33	Comp. com. fract. of thigh	2 h.	Flap	Recovery	28 d.	Secondary hemorrhage; gangrene.
20	Clark	May 28, 1854	Minor	M. 24	Laceration of thigh and leg	2 h.	Flap	Recovery	159 d.	R. R. accident; pneum.; resect. of end of femur.
21	Clark	June 12, 1854	Laborer	M. 30	Comp. com. fract. of thigh	7 h.	Circular	Death	126 d.	" " " laceration of buttock and scalp;
22	Townsend	July 13, 1855	Laborer	M. 45	" " " " "	2 h.	"	Recovery	124 d.	" " " epilepsy. (?)
23	Gay	Sept. 19, 1855	Mechanic	M. 20	" " " " "	3 h.	"	Death	195 d.	" " " obstinate vomiting.
24	"	Oct. 2, 1855	"	M. 20	" " " " "	1 h.	"	Recovery	61 d.	" " " convulsions & stupor for 3 days
25	"	Oct. 8, 1855	"	M. 25	" " " " "	2 h.	"	Death	32 d.	Delirium tremens; d. from collapse.
26	Townsend	June 21, 1856	Laborer	M. 33	" " " " "	2 h.	"	Recovery	134 d.	R. R. accident; erysipelas.
27	Clark	Aug. 11, 1856	Minor	M. 4	" " " " "	20 h.	Circular	Death	22 d.	Fracture of elbow; delirium; d. from collapse.
28	Gay	Sept. 11, 1856	Brakeman	M. 23	" " " " "	3 h.	"	Recovery	186 d.	Erysipelas; delirium.
29	Townsend	Dec. 1, 1856	Widow	F. 42	" " " " "	3 h.	"	Death	129 d.	R. R. accident; resection of the end of femur.
30	Bigelow	Mar. 2, 1857	Carpenter	M. 28	" " " " "	15 h.	"	Recovery	46 d.	" " " " "
31	Gay	Aug. 20, 1858	Minor	M. 16	" " " " "	12 h.	"	Death	42 d.	" " " " "
32	Townsend	Sept. 2, 1858	Seaman	M. 28	" " " " "	2 h.	"	Recovery	106 d.	" " " " "
33	Gay	Sept. 21, 1858	Minor	M. 10	" " " " "	1 h.	"	Death	40 d.	" " " " "
34	"	Dec. 9, 1858	"	M. 11	" " " " "	24 h.	"	Recovery	11 d.	" " " " "
35	Clark	May 6, 1859	Rigger	M. 32	" " " " "	2 h.	"	Death	10 h.	Double amputation; d. from collapse.
36	"	June 21, 1859	Teamster	M. 34	" " " " "	2 h.	"	Recovery	11 d.	Lisfranc's amp. of other foot.
37	Gay	Oct. 10, 1859	Brewer	M. 32	" " " " "	3 h.	"	Death	94 d.	R. R. accident; comp. com. fract. of other ankle.
38	Bigelow	Dec. 8, 1859	Brakeman	M. 30	" " " " "	2 h.	"	Recovery	3 d.	" " " " "
39	Townsend	Sept. 6, 1860	Laborer	M. 61	" " " " "	2 h.	"	Death	"	" " " " "
40	Bigelow	Jan. 29, 1861	Inspector	M. 40	" " " " "	2 h.	"	Recovery	"	" " " " "
41	Clark	Oct. 21, 1861	Minor	M. 24	" " " " "	2 h.	"	Death	"	" " " " "
42	Gay	Oct. 21, 1861	Laborer	M. 24	" " " " "	2 h.	"	Recovery	"	" " " " "
43	Clark	Oct. 21, 1862	"	M. 40	" " " " "	2 h.	"	Death	"	" " " " "
44	J. M. Warren	July 6, 1862	Minor	M. 10	" " " " "	2 h.	"	Recovery	"	" " " " "
45	"	June 20, 1863	Errand-boy	M. 16	" " " " "	2 h.	"	Death	"	" " " " "
46	"	July 11, 1863	Minor	M. 6	" " " " "	2 h.	"	Recovery	"	" " " " "
47	Hodges	Sept. 21, 1863	Laborer	M. 32	" " " " "	2 h.	"	Death	"	" " " " "
48	"	Sept. 21, 1863	"	M. 32	" " " " "	2 h.	"	Recovery	"	" " " " "
49	J. M. Warren	April 9, 1864	Driver	M. 38	" " " " "	2 h.	"	Death	"	" " " " "

Table 10 (concluded.)

## AMPUTATIONS OF THIGH.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
50	J. M. Warren	June 2, 1864	Seaman	M. 24	Comp. com. frac. of both legs	2 h.	Circular	Death	23 d.	Double amputation.
51	Hodges	April 18, 1865	Minor	F. 2	" " " leg	1 1/2 h.	"	Recovery	28 d.	R. R. accident.
52	Cabot	July 23, 1865	"	M. 13	" " " "	1 1/2 h.	"	Death	15 d.	D. from tetanus.
53	Hodges	Dec. 17, 1867	Brakeman	M. 23	" " " "	2 h.	Flap	Recovery	25 d.	R. R. accident.
54	"	Oct. 6, 1869	"	M. 38	" " " "	4 h.	"	"	72 d.	"
55	Gay	July 18, 1870	Laborer	M. 50	Laceration of thigh	2 h.	Circu ar	Death	5 d.	amp. of other foot.
56	"	July 18, 1870	Minor	M. 9	Comp. com. frac. of leg	2 h.	"	Recovery	86 d.	Pulmonary complication; d. from pyemia.
57	Coillidge	July 23, 1870	Swiss	M. 40	Knee joint opened	1 h.	Flap	Death	2 h.	R. R. accident; exten. lac. of thigh; d. fr. shock.
58	Hodges	Aug. 17, 1870	Tailor	M. 30	Comp. com. frac. of leg	2 h.	Circular	"	39 d.	Fract. of other ankle; d. from pyemia.
59	Bigelow	Nov. 22, 1870	Minor	M. 11	Comp. " both knees	4 h.	"	"	15 h.	R. R. accident; double amp.; d. from shock.
60	Cabot	Jan. 20, 1871	"	M. 13	" " thigh	3 h.	Flap	Recovery	57 d.	Not fully healed; resection of end of femur.
Recovered, 34					Deaths from Collapse,	10	R. R. accidents, 27, of which 8 were fatal.			
Died, 25					" Exhaustion,	8				
Relieved, 1					" Shock,	4				
Total, 60					" Pyemia,	2				
Ratio of mortality, 42.37 per cent.					" Tetanus,	1				

Table 11.

## AMPUTATIONS OF THIGH.—TRAUMATIC—SECONDARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation Method.	Place.	Result.	Length of Time.	Details.	
1	J. C. Warren	Nov. 19, 1824	Boatman	M. 30	Comp. frac. of leg	15 d.	Flap	"	Death	12 h.	D. from tetanus, developed before operation.	
2	Townsend	Nov. 18, 1828	Laborer	M. 17	Lacer. of leg into knee-joint	25 h.	Circular	"	Recovery	37 d.	Premature explosion while blasting.	
3	J. M. Warren	Aug. 30, 1845	"	M. 21	Comp. com. frac. of leg	3 mo.	"	"	Death	63 d.	Delirium tremens; erysipelas.	
4	"	Nov. 21, 1851	Minor	M. 13	" " " "	121 d.	"	"	Recovery	23 d.	Delirium tremens.	
5	Clark	Nov. 21, 1851	"	M. 23	Laceration of leg	42 d.	"	"	Death	28 d.	Bed sores; erysipelas.	
6	Parkman	July 13, 1852	Mechanic	M. 24	Comp. frac. of leg	39 h.	"	"	Recovery	23 d.	R. R. accident; thoracic complications.	
7	Gay	Oct. 15, 1857	"	M. 51	Comp. com. frac. of leg	2 mo.	"	"	Recovery	42 d.	Delirium tremens.	
8	J. M. Warren	April 15, 1857	Steveldore	M. 51	" " " "	53 d.	"	"	Death	119 d.	Dislocation of shoulder also.	
9	Bigelow	Jan. 3, 1859	Laborer	M. 48	Comp. frac. ank. & lac. thigh	10 d.	"	"	Recovery	6 d.	Delirium tremens; fract. of 4 ribs.	
10	"	Nov. 20, 1861	"	M. 45	Comp. frac. of knee	16 d.	"	"	Death	6 d.	Bullet wound; d. from pyæmia. (?)	
11	Hodges	July 16, 1863	Lieutenant	M. 28	Commun. frac. of leg	4 d.	"	"	Recovery	155 d.	R. R. accident; phlebitis; diffuse cellular inflam.	
12	"	Oct. 15, 1864	Laborer	M. 29	Fracture of leg	27 d.	"	"	Death	3 d.	Epilepsy; at aut. enceph. tumors found in brain &	
13	J. M. Warren	Mar. 30, 1865	Teamster	M. 56	Comp. com. frac. of leg	24 d.	"	"	"	7 d.	R. R. accident; secondary hæmorrh. [both lungs.	
14	"	May 19, 1865	Laborer	M. 57	Bullet in knee	13 d.	Flap	"	"	4 d.	Bullet wound of buttock; fract. of pelvis.	
15	Hodges	Sept. 19, 1866	Trader	M. 28	" " " "	13 d.	"	"	"	"	"	
Recovered, 9					Deaths from Exhaustion,							R. R. accidents, 3, of which 2 were fatal.
Died, 6					Tetanus,							
Total, 15					Enceph. growth in brain,							
Ratio of mortality, 60 per cent.					Pyæmia,							

Table 12.

## AMPUTATIONS OF THIGH.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation.	Result.	Length of Time.	Details.
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MASSACHUSETTS GENERAL HOSPITAL.

ix

AMPUTATIONS OF THIGH.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	J. C. Warren	Nov. 13, 1823		F. 49	Chronic disease of knee-joint	5 mo.	Circular	Recovery	223 d.	Secondary hemorrhage.
2	"	Mar. 29, 1824		F. 16	Chronic disease of knee-joint	7 mo.	Flap	Recovery	35 d.	Venesection ad vit. oz.
3	"	May 9, 1824		M. 18	Chronic disease of knee-joint	18 mo.	"	Death	3 d.	Obstinate vomiting.
4	"	Dec. 9, 1827		M. 21	"	3 y.	"	Recovery	65 d.	Secondary hemorrhage.
5	"	May 9, 1827		M. 21	Ulcers on legs	4 mo.	Circular	Relieved	73 d.	"
6	"	Dec. 9, 1828	Shoemaker	M. 21	Chronic disease of knee-joint	3 mo.	Flap	Death	5 d.	"
7	"	May 9, 1828	"	M. 23	"	10 y.	Circular	Recovery	40 d.	Great hemorrhage during op. D. fr. exhaustion.
8	"	Dec. 6, 1828	"	M. 24	Deformity of knee	16 y.	Flap	Death	39 d.	Deformity caused by dislocation of patella.
9	"	Dec. 6, 1828	Servant	M. 12	Chronic disease of knee-joint	8 mo.	Circular	Recovery	180 d.	Night sweats. D. fr. exhaustion.
10	"	Nov. 27, 1829	Shoemaker	M. 23	"	3 y.	Flap	Death	103 d.	"
11	"	Nov. 27, 1829	"	M. 23	"	6 y.	Circular	Recovery	99 d.	Secondary hemorrhage.
12	"	April 12, 1832	Cooper	M. 26	"	"	"	"	31 d.	Venesection ad vit. oz.
13	J. C. Warren	Nov. 24, 1832	"	M. 27	"	23 y.	Flap	"	95 d.	Secondary hemorrhage.
14	"	Aug. 28, 1832	"	M. 21	"	3 mo.	Circular	"	43 d.	"
15	"	Sept. 26, 1832	Grocer	M. 37	Necrosis of tibia	20 y.	Flap	"	70 d.	"
16	"	Jan. 11, 1833	Domestic	F. 21	Chronic disease of knee-joint	5 y.	Circular	"	56 d.	"
17	"	May 8, 1833	Mechanic	M. 36	"	4 y.	"	"	53 d.	"
18	J. C. Warren	Dec. 28, 1833	Spinner	F. 23	Tumor of leg	4 y.	"	Death	162 d.	Tumor removed previously. D. fr. pyæmia developed before op.
19	"	Jan. 11, 1834	Farmer	M. 35	Chronic disease of knee-joint	13 y.	Flap	Recovery	102 d.	Resection of end of femur.
20	"	Dec. 14, 1833	Minor	F. 13	Necrosis of femur	1 y.	"	"	34 d.	Rheumatism.
21	J. C. Warren	June 10, 1837	Walloress	F. 27	Chronic disease of knee-joint	5 y.	Circular	"	58 d.	"
22	Hayward	Nov. 4, 1837	Carpenter	M. 27	Chronic disease of knee-joint	5 y.	"	"	44 d.	"
23	"	Nov. 4, 1837	Medicant	M. 29	"	24 y.	"	"	58 d.	"
24	Townsend	May 25, 1839	Farmer	M. 37	Ulcer of leg	5 y.	"	Death	2 h.	[Morhage, &c.
25	Hayward	Mar. 16, 1842	Laborer	M. 23	Necrosis of femur	5 y.	"	Recovery	47 d.	Alcoholic habit. D. fr. exhaustion caused by hæ-
26	"	Nov. 16, 1842	Machinist	M. 34	Ulcers of leg	5 y.	"	"	40 d.	Secondary hemorrhage.
27	J. C. Warren	Oct. 14, 1843	Tailor	M. 19	Chronic disease of knee-joint	13 y.	"	Death	27 d.	D. fr. exhaustion.
28	"	Nov. 17, 1844	Minor	F. 17	"	34 mo.	Flap	Recovery	66 d.	Secondary hemorrhages requiring ligation of fem.
29	J. C. Warren	Aug. 6, 1845	Laborer	M. 30	"	2 y.	"	"	70 d.	"
30	Townsend	June 17, 1845	Laborer	M. 24	"	5 y.	"	"	49 d.	Thigh caught in coil of rope.
31	J. C. Warren	Aug. 6, 1845	Sailor	M. 21	Gangrene of leg	3 w.	"	"	2 d.	Secondary hemorrhage.
32	"	Dec. 27, 1845	Minor	M. 12	Chronic disease of knee-joint	14 y.	"	Death	46 d.	First patient to whom ether was administered for Phlebitis and embolism shown at autopsy.
33	"	Dec. 27, 1845	Domestic	F. 21	Chronic disease of knee-joint	14 y.	Flap	Recovery	29 d.	"
34	Hayward	May 23, 1846	Physician	M. 60	Necrosis of leg	50 y.	Circular	Death	46 d.	"
35	Townsend	July 12, 1847	Domestic	M. 39	Deformity from injury	2 y.	Flap	Recovery	51 d.	"
36	J. C. Warren	Aug. 27, 1847	Carver	M. 25	Tumor of leg	9 mo.	"	Death	6 d.	Much reduced before op. by suppuration. [Frisch.
37	Hayward	Sept. 1, 1847	Mechanic	M. 34	Chronic disease of knee-joint	2 y.	"	Recovery	208 d.	Following ligation of fem. artery for traum. aneu-
38	Hayward	Nov. 27, 1847	Laborer	M. 23	Gangrene of leg	3 w.	"	Recovery	35 d.	Inginal glands inflamed.
39	Hayward	Feb. 5, 1848	Seaman	M. 22	Chronic disease of knee-joint	4 mo.	Circular	Recovery	81 d.	"
40	J. C. Warren	June 12, 1848	Laborer	M. 22	"	2 y.	"	"	87 d.	Erysipelas. Resection of end of femur.
41	Townsend	Mar. 31, 1849	Shoemaker	M. 23	"	1 y.	Flap	"	69 d.	Nearly whole of fibula absorbed, encephaloid.
42	J. C. Warren	May 9, 1849	Clerk	M. 14	Necrosis of femur	1 y.	"	"	94 d.	Fractured patella.
43	"	Sept. 4, 1849	Shoemaker	M. 22	Tumor of tibia	3 y.	Circular	"	281 d.	Great suppuration—resection of end of femur.
44	Furkman	Sept. 8, 1849	Merchant	M. 33	Chronic disease of knee-joint	30 y.	"	"	69 d.	"Malignant." Great hemorrhage. D. fr. pyæmia.
45	J. C. Warren	Oct. 17, 1849	Trader	M. 48	Necrosis of femur	10 mo.	"	Death	60 d.	Ulcers on thigh. D. fr. exhaustion.
46	"	Oct. 28, 1849	Mechanic	M. 27	Tumor of patella	6 y.	"	Recovery	80 d.	"
47	"	Feb. 3, 1850	Farmer	M. 54	Chronic disease of knee-joint	6 y.	"	Death	11 d.	"
48	"	Mar. 20, 1850	Spinner	F. 24	Deformity from clatrix	14 y.	Flap	Death	11 d.	"



# AMPUTATIONS AT THE

Table 12 (continued.)

No.	Operator.	Date.	Occupation.	Sex and age.	Disease.	Duration.	Amputation.		Result.	Length of Time.	Details.
							Method.	Place.			
50	Townsend	Mar. 22, 1850	Minor	M. 12	Caries of femur	18 mo.	Circular	"	Recovery	39 d.	
51	Hayward	Oct. 10, 1850	Domestic	F. 26	Chronic disease of knee-joint	18 mo.	Flap	"	"	99 d.	Encephaloid.
52	J. M. Warren	Dec. 18, 1850	Mechanic	M. 32	Tumor of leg	23 y.	Circular	"	"	45 d.	Primary amputation for R. R. accident.
53	Bigelow	Dec. 18, 1851	Laborer	M. 29	Ulcers of stump	9 w.	"	"	Death	27 d.	D. fr. pyemia, as shown at autopsy.
54	J. M. Warren	Dec. 18, 1851	Mechanic	M. 29	Tumor of knee	25 y.	"	"	Recovery	56 d.	
55	Bigelow	Dec. 18, 1851	Laborer	M. 36	Chronic disease of knee-joint	7 y.	"	"	Recovery	38 d.	
56	J. M. Warren	June 26, 1852	Minor	M. 19	"	15 mo.	"	"	Death	7 d.	At autopsy tubercles and abscesses found in lungs.
57	Parkman	Sept. 8, 1852	Mechanic	M. 22	"	30 y.	"	"	Recovery	36 d.	Chronic Bright's disease. Great anasarca.
58	Townsend	Sept. 27, 1852	Currier	F. 41	Ulcers of leg	6 y.	"	"	"	38 h.	
59	Parkman	Oct. 27, 1852	Housewife	F. 41	"	19 y.	"	"	"	43 d.	
60	J. M. Warren	April 19, 1852	Seaman	M. 21	Chronic disease of knee-joint	19 y.	"	"	"	54 d.	Fatty degeneration of muscles.
61	Clark	May 28, 1852	Seamstress	F. 24	"	30 y.	"	"	"	51 d.	Extensive ulcer of femur.
62	Bigelow	Nov. 28, 1852	Domestic	F. 14	"	38 y.	"	"	"	391 d.	Fibro-plastic Singulans.
63	J. M. Warren	Feb. 18, 1854	Minor	F. 16	"	8 mo.	Circular	"	"	34 d.	Excision of end of femur. Obstinate vomiting.
64	J. M. Warren	Mar. 1, 1854	Clergman	M. 54	Tumor of knee	1 y.	"	"	Death	66 d.	
65	Parkman	July 29, 1854	Laborer	M. 17	Chronic disease of knee-joint	40 y.	"	"	Recovery	81 d.	Strumous diathesis.
66	Bigelow	Jan. 5, 1856	Farmer	M. 50	Necrosis of femur	8 mo.	"	"	"	34 d.	Transfusion. Great hemorrhage. D. fr. collapse.
67	Townsend	Aug. 8, 1856	Mechanic	M. 21	"	2 y.	"	"	Death	50 d.	Hemorrhage.
68	"	Oct. 21, 1856	Laborer	M. 30	Chronic disease of knee-joint	3 y.	"	"	"	34 d.	Phibical.
69	J. M. Warren	Feb. 24, 1857	Housewife	F. 40	"	3 mo.	"	"	"	100 d.	Osteo-sarcoma. D. fr. return of dia. 6 mos. later.
70	Bigelow	Feb. 25, 1857	Domestic	F. 22	"	5 mo.	"	"	"	45 d.	Sequestrum drawn fr. shaft of femur.
71	"	Feb. 25, 1857	Laborer	M. 25	"	5 mo.	"	"	"	72 d.	Osteo-sarcoma.
72	"	April 4, 1857	Shoemaker	F. 27	Ulcers of leg	23 y.	"	"	Death	3 d.	Necrosis excised 7 years later.
73	J. M. Warren	May 9, 1857	Seamstress	F. 27	Chronic disease of knee-joint	15 y.	"	"	"	135 d.	Neuritis. Tuberculosis.
74	Townsend	Aug. 16, 1857	Minor	F. 15	Chronic disease of knee-joint	7 mo.	"	"	"	79 d.	"Cancer." Secondary hemorrhage. D. fr. ex-
75	"	Sept. 16, 1857	Domestic	F. 15	"	3 mo.	"	"	Recovery	19 d.	Myeloid. Resection of end of femur 4 mos. later.
76	Bigelow	Oct. 29, 1857	Domestic	F. 30	Tumor of thigh	2 y.	"	"	"	60 d.	Transfusion. Great hemorrhage. D. fr. collapse.
77	Townsend	Aug. 14, 1858	Minor	M. 15	Chronic disease of knee joint	9 y.	"	"	"	45 d.	Hemorrhage.
78	Bigelow	Sept. 20, 1858	Sole-dealer	M. 21	Chronic disease of knee joint	2 y.	"	"	"	100 d.	Phibical.
79	Townsend	Nov. 6, 1858	Minor	M. 12	Necrosis of tibia	2 y.	"	"	"	72 d.	Osteo-sarcoma. D. fr. return of dia. 6 mos. later.
80	C. C. C.	Nov. 6, 1858	Minor	M. 12	"	2 y.	"	"	"	135 d.	Sequestrum drawn fr. shaft of femur.
81	"	Nov. 20, 1858	Currier	M. 30	Chronic disease of knee-joint	1 y.	Flap	"	"	63 d.	Necrosis excised 7 years later.
82	Bigelow	Feb. 25, 1859	Paper-carrier	M. 40	"	2 y.	Circular	"	"	79 d.	Branchitis. Tuberculosis.
83	J. M. Warren	Mar. 30, 1859	Laborer	M. 23	Tumor of thigh	5 mo.	"	"	Death	79 d.	"Cancer." Secondary hemorrhage. D. fr. ex-
84	"	May 11, 1859	Painter	M. 33	" " flailia	18 mo.	"	"	Recovery	19 d.	Myeloid. Resection of end of femur 4 mos. later.
85	"	May 27, 1859	Shoemaker	F. 30	Necrosis of tibia	24 mo.	Flap	"	"	45 d.	Transfusion. Great hemorrhage. D. fr. collapse.
86	Clark	July 21, 1859	Minor	F. 8	"	3 mo.	Circular	"	"	45 d.	Hemorrhage.
87	Clark	Aug. 24, 1859	Farmer	M. 18	Tumor of femur	3 mo.	"	"	"	129 d.	"Osteoid cancer." Hemorrhage.
88	Guy	Sept. 24, 1859	Student	M. 20	Necrosis of tibia	3 mo.	"	"	Death	7 d.	At autopsy tubercles found in left lung.
89	"	Sept. 24, 1859	Student	M. 20	Chronic disease of knee-joint	15 y.	"	"	Recovery	170 d.	Extensive sloughing of flaps.
90	Townsend	Oct. 18, 1859	Marble-polisher	M. 26	Tumor of tibia	6 mo.	"	"	"	71 d.	"
91	J. M. Warren	Nov. 14, 1859	Cabinet-maker	M. 21	"	10 mo.	"	"	"	39 d.	Strumous diathesis.
92	Bigelow	Nov. 23, 1859	Tanner	M. 14	Chronic disease of knee-joint	15 mo.	"	"	Relieved	81 d.	Growth reappearing in stump.
93	Calot	Nov. 23, 1859	Housewife	F. 28	Tumor of leg	18 mo.	"	"	Death	45 d.	Autopsy showed chr. Bright's dia. and pyemia.
94	J. M. Warren	Nov. 30, 1859	Widow	F. 45	Chronic disease of knee-joint	2 y.	"	"	"	27 d.	Jaundice. D. before reaching home.
95	Bigelow	Jan. 12, 1860	Lt-housekeeper	M. 26	Tumor of leg	14 y.	"	"	Recovery	23 d.	"
96	"	Jan. 12, 1860	Housewife	F. 23	Chronic disease of knee-joint	7 mo.	"	"	"	31 d.	Not fully healed. D. fr. phlebitis 5 mos. later.
97	"	Mar. 8, 1860	"	F. 23	"	1 y.	"	"	"	20 d.	Resection of end of femur 1 mo. later.
98	J. M. Warren	Mar. 23, 1860	"	F. 47	Necrosis of tibia	1 y.	"	"	"	21 d.	"

### AMPUTATIONS OF THIGH.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation.	Result.	Length of Time.	Details.
99	Clark	May 3, 1860	Seaman	M. 31	Chronic disease of knee-joint	2 y.	Flap	Recovery	188 d.	Disease of spine also.
100	Gay	June 5, 1860	Machinist	M. 48	" "	4 y.	Circular	Death	2 d.	Secondary hemorrhage. Antopsy showed tubercular gangrene.
101	Townsend	July 9, 1860	Domestic	F. 19	Traumatic paralysis of leg	10 y.	"	Recovery	162 d.	Slinging of flaps.
102	J. M. Warren	Oct. 19, 1861	Widow	F. 43	Chronic disease of knee-joint	3 y.	"	"	103 d.	Great prostration before op.
103	"	Mar. 19, 1861	Domestic	F. 53	Excision of knee-joint	9 y.	Circular	Death	90 d.	D. fr. exhaustion.
104	"	April 22, 1861	Domestic	F. 26	Excision of knee-joint	10 mo.	"	Recovery	60 d.	
105	Bigelow	Nov. 7, 1861	Cigar-maker	M. 34	Wet stump of leg	12 y.	Flap	"	70 d.	
106	J. M. Warren	Feb. 13, 1862	Farmer	M. 36	Necrosis of femur	12 y.	Flap	"	81 d.	Secondary hemorrhages necess. ligature of fem.
107	"	April 14, 1862	Farmer	M. 31	" "	15 mo.	Circular	"	48 d.	Erysipelas.
108	Townsend	Nov. 26, 1862	Painter	M. 35	Necrosis of tibia	15 mo.	Flap	"	75 d.	
109	Cabot	Nov. 26, 1862	Painter	M. 35	" femur	1 y.	Circular	"	28 d.	
110	GAY	Oct. 3, 1862	Laborer	M. 25	" femur	2 y.	"	"	86 d.	
111	J. M. Warren	April 22, 1863	Operative	F. 23	" tibia	2 y.	"	"	29 d.	
112	Clark	May 23, 1863	Nail-maker	M. 43	Chronic disease of knee-joint	5 y.	"	"	50 d.	
113	J. M. Warren	May 26, 1863	Minor	M. 19	Ankylosis at knee-joint	9 mo.	"	"	30 d.	
114	Bigelow	July 24, 1863	Farmer	M. 22	Arkylos of tibia	9 mo.	"	"	30 d.	
115	"	Nov. 2, 1863	Spinner	F. 22	Chronic disease of knee-joint	12 y.	"	"	55 d.	
116	"	Nov. 24, 1863	Spinner	F. 22	" "	23 y.	"	"	55 d.	
117	J. M. Warren	Nov. 24, 1863	Farmer	M. 35	Necrosis of tibia	13 y.	Flap	"	33 d.	
118	Bigelow	Feb. 27, 1864	Trader	M. 27	" femur	13 y.	Flap	"	31 d.	
119	Clark	Feb. 27, 1864	Shoemaker	M. 27	" "	18 mo.	Circular	"	31 d.	
120	Clark	April 16, 1864	Cigar-maker	M. 26	" "	12 y.	Flap	"	31 d.	
121	"	April 16, 1864	Widow	F. 24	Chronic disease of knee-joint	12 y.	Flap	"	31 d.	
122	Hodges	July 26, 1864	Farmer	M. 40	" "	12 y.	"	"	31 d.	
123	"	July 26, 1864	Farmer	M. 70	Tumor of leg	4 y.	Circular	Death	23 d.	Secondary hemorrhages.
124	"	Aug. 5, 1864	Clerk	M. 34	Chronic disease of knee-joint	28 y.	"	"	33 d.	Tubercles and pyemic deposits found at autopsy.
125	Bigelow	Nov. 11, 1864	Laborer	M. 35	Necrosis of tibia	10 y.	Flap	Recovery	82 d.	Sec. hemorrhage. Erysipelas. D. fr. exhaustion.
126	Gay	Nov. 30, 1864	Laborer	M. 64	Chronic disease of knee-joint	2 mo.	Circular	Death	6 d.	Sec. hamor. necess. lig. of fem. artery. Hospital gangrene. D. fr. pyemia as shown at autopsy.
127	Bigelow	Dec. 1, 1864	Merchant	M. 26	Tumor of thigh	1 y.	Flap	Recovery	80 d.	Resection of end of femur 1 year later.
128	"	Dec. 1, 1864	Clerk	M. 26	Chronic disease of knee-joint	5 y.	"	"	94 d.	Tubercles found in l. lung at autopsy.
129	Gay	Jan. 6, 1865	Housewife	F. 61	Tumor of leg	15 mo.	"	Death	19 d.	Erysipelas. D. fr. return of disease 5 mos. later.
130	Bigelow	Jan. 12, 1865	Minor	M. 29	Chronic disease of knee-joint	3 y.	"	Recovery	129 d.	[in lungs.]
131	Clark	May 1, 1865	Minor	M. 26	Chronic disease of knee-joint	3 y.	"	Recovery	129 d.	Resection of end of femur.
132	Clark	Sept. 1, 1865	Seaman	M. 36	Deficiency of leg, fracture	6 y.	"	Death	23 d.	D. fr. pyemia as shown at autopsy.
133	Gay	Sept. 1, 1865	Farmer	M. 36	Ankylosis of knee	2 y.	Flap	Recovery	24 d.	Secondary hemorrhage.
134	Hodges	Nov. 8, 1865	Farmer	M. 20	Cancer of sciatic nerve	1 y.	"	"	41 d.	Recession of end of femur.
135	"	Nov. 17, 1865	Musician	M. 40	Chronic disease of knee-joint	2 y.	"	"	42 d.	Recession of end of femur.
136	J. M. Warren	Jan. 27, 1866	Shoemaker	M. 55	Tumor of leg	2 y.	Circular	Death	47 d.	D. fr. cancerous growth in lungs 8 mos. later.
137	"	Jan. 27, 1866	Carpenter	M. 26	Chronic disease of knee-joint	3 y.	Flap	Recovery	37 d.	D. fr. pyemia, as shown at autopsy.
138	"	May 29, 1866	Cobbler	M. 20	Necrosis of femur	6 mo.	"	"	45 d.	Pneumonia. D. fr. pyemia, as shown at autopsy.
139	"	May 29, 1866	Apothecary	M. 20	" "	3 y.	Flap	"	28 d.	Erysipelas.

Table 12 (concluded.) AMPUTATIONS OF THIGH.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
146	Clark	Mar. 20, 1867	Housewife	F. 28	Chronic disease of knee-joint	8 y.	Flap	Recovery	20 d.	
147	Hodges	June 15, 1867	Soldier	M. 23	Necrosis of stump	1 y.	"	"	33 d.	Pr. amp. for comp. fract. of thigh 11 mos. ago.
148	"	Oct. 9, 1867	Engraver	M. 22	Chronic disease of knee-joint	18 y.	Circular	"	122 d.	Extensive sloughing of flaps.
149	"	Feb. 17, 1868	Merchant	M. 38	Tumor of leg	8 y.	Flap	"	69 d.	Erysipelas.
150	"	Feb. 22, 1868	Minor	M. 18	"	6 mo.	"	"	39 d.	"Cancer."
151	"	Mar. 18, 1868	"	M. 13	"	7 mo.	"	"	33 d.	Sarcoma.
152	Gay	May 29, 1868	"	M. 36	"	24 mo.	"	"	39 d.	
153	"	July 29, 1868	Mechanic	M. 36	Chronic disease of knee-joint	3 y.	"	"	47 d.	
154	Hodges	Sept. 30, 1868	Harnessmaker	M. 28	"	1 y.	"	"	28 d.	
155	Gay	Oct. 3, 1868	Bookseller	M. 37	"	1 y.	Teale's Circular	Recovery	102 d.	
156	Eigelow	Oct. 9, 1868	"	M. 32	"	5 mo.	Flap	"	35 d.	
157	Clark	April 3, 1869	Laborer	M. 44	Tumor of leg	9 mo.	Flap	"	49 d.	
158	Clark	May 17, 1869	Spinster	F. 24	Chronic disease of knee-joint	3 mo.	Circular	"	23 d.	
159	Coolidge	June 1, 1869	Teamster	M. 32	Necrosis of thigh	9 mo.	"	"	22 d.	
160	Clark	June 8, 1869	Laborer	M. 34	Chronic disease of knee-joint	11 mo.	Flap	"	27 d.	
161	Gay	Oct. 19, 1869	Minor	M. 19	Necrosis of foot	5 y.	"	"	27 d.	
162	"	Oct. 29, 1869	"	M. 13	Chronic disease of knee-joint	5 y.	"	"	58 d.	Epilepsy
163	"	Nov. 6, 1869	Seaman	M. 43	Tumor of thigh	3 w.	"	"	156 d.	Secondary hemorrhage.
164	Bigelow	Nov. 6, 1869	Laborer	M. 25	Chronic disease of knee-joint	6 y.	"	"	17 d.	Curvature of spine. Tumor in l. lumbar region.
165	Gay	July 14, 1870	Domestic	F. 20	Tumor of leg	7 mo.	"	Death	17 d.	Secondary hemorrhages. [Jaws. D. fr. exh.
166	Cabot	Feb. 21, 1871	Minor	M. 15	Chronic disease of knee-joint	2 y.	"	"	18 d.	Excl. of tumor attempt. 3 wk's before amp. Many

Recovered, 128  
Died, 34  
Relieved, 2  
Removed, 2  
Ratio of mortality, 20.98.

The causes of amputation were:  
Chronic disease of knee-joint in 82 cases.  
Excision of knee-joint 1  
Tumors 29  
Traum. paralysis 1  
Necrosis of stump 6  
Necrosis of stump 6  
Painful stump 2  
Ulcer 2

Table 13. AMPUTATIONS AT KNEE-JOINT.—PATHOLOGICAL.

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Method of Amputation.	Result.	Length of Time.	Details.
1	Cabot	June 4, 1859	Shoecutter	M. 30	Necrosis r. thigh	19 y.	Post. flap	Well	46 d.	
2	Bigelow	F. b. 8, 1868	Merchant	M. 62	Malignant tumor of leg	8 y.	"	"	69 d.	Patella and cartil. removed. Reentered for diarrhoea, and died Oct. 2, 1869.
3	Cabot	Nov. 28, 1868	Minor	M. 12	Chronic disease of knee	11 mo.	Long ant. flap	"	31 d.	Patel. & cartil. removed. Sinuses in thigh form'd
4	Bigelow	Jan. 28, 1870	Operative	F. 41	Pulpy deg. of knee-joint	3 y.	Ant. & post.	"	42 d.	Short ant. and long post. flaps. Patella removed.
5	"	Jan. 28, 1870	Operative	F. 23	"	5 y.	"	"	38 d.	Ant. fl. 3 in. below pat. & l. p. fl. Pye. gau. & erys.
6	Hodges	May 29, 1870	Minor	F. 63	Conical and ulcerated stump	5 y.	"	Dead	10 d.	Slight attack of erysipelas. [flap sloughed.
7	Bigelow	Nov. 12, 1870	Wife	F. 67	Malignant disease of thigh	14 mo.	"	Well	131 d.	flaps sloughed.
8	"	Nov. 12, 1870	Farmer	F. 27	Necrosis of thigh & ch. dis. of knee	13 y.	"	"	67 d.	Legs amput. & short p. fl. Dis. cartil. removed. Aut.
9	Cabot	Nov. 19, 1870	Carpenter	M. 34	Ankylo. knee & sinuses in leg	14 y.	Long ant. flap	Well	61 d.	Pyemia. Long ant. and long post. flaps.
10	Bigelow	Dec. 24, 1870	Milliner	F. 27	Carries of knee-joint	23 y.	Ant. & post. flap	Well	61 d.	Ant. flap sloughed.
11	Cabot	Jan. 27, 1871	Nurse	F. 65	Abscess of knee-joint	1 y.	"	Dead	5 d.	Death from Exhaustion, 3; from Pyemia, 2.

Ratio of mortality, 36.36 per cent.

Recovered, 7; Died, 4—Total 11.

Table 14.

AMPUTATIONS AT KNEE-JOINT.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Injury.	Duration.	Method of Amputation.	Result.	Length of Time.	Details.
1	Hodges	Oct. 17, 1867	Mechanic	M. 33	Comp. com. fract. leg	1 h.	Ant. & post. flap	Well	72 d.	Amp. of left foot also (procédé de M. Roux.)
2	"	June 3, 1868	Bookkeeper	M. 18	"	1 h.	"	"	81 d.	Post. flap sloughed.
3	"	Aug. 6, 1869	Merchant	M. 82	"	4 h.	"	Dead	2 h.	Had bled excessively.
4	Clark	June 2, 1870	Coachman	M. 39	"	4 h.	"	"	1 d.	C. com. fract. of pelvis also. Horse R. Road.
5	Hodges	June 25, 1870	Auditor	M. 49	"	2 h.	"	"	23 d.	L. ant. & sh. post. il.; ante cellularis; p. thigh d.

Ratio of mortality, 60.00 per cent.

Deaths from Exhaustion, 3.

R. R. accident, 1, which was fatal.

Table 15.

AMPUTATIONS OF LEG.—TRAUMATIC—PRIMARY.

No.	Operator	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	Hayward	April 25, 1832	Truckman	M. 27	Laceration of leg	18 h.	Circular	Recovery	82 d.	
2	"	Mar. 5, 1838	Laborer	M. 30	Comp. com. fract. "	1 h.	"	Death	19 d.	Alcoholic habit. Secondary hemorrhages.
3	"	Jan. 14, 1843	Teamster	M. 20	"	23 h.	"	Recovery	19 d.	Delirium tremens. Convul. Cause of d. unkn.
4	Townsend	Aug. 14, 1843	Apprentice	F. 50	"	3 h.	"	"	56 d.	Recovery. Delirium tremens. Cause of d. unkn.
5	"	Nov. 16, 1846	Tanner	M. 35	"	14 h.	Flap	"	138 d.	Recovery. Delirium tremens.
6	"	Feb. 20, 1847	Brakeman	M. 27	"	3 h.	Circular	Death	161 d.	R. R. accident. Delirium tremens.
7	J. M. Warren	Mar. 24, 1847	Laborer	M. 39	"	4 h.	"	"	6 d.	do. Secondary hemorrhage. Pleuritis.
8	"	Sept. 2, 1847	"	M. 40	"	3 h.	"	"	18 h.	do. F. of skull. D. fr. comp. as sh. at autopsy.
9	"	Sept. 27, 1847	"	M. 26	"	3 h.	"	Recovery	99 d.	do. cont. of abdomen. D. fr. periton. and perf.
10	J. M. Warren	Mar. 13, 1848	Minor	F. 6	"	3 h.	"	"	40 d.	[of small intest. shown at aut.
11	"	April 27, 1848	Domestic	M. 21	"	1 h.	"	"	111 d.	do. Resection of end of bones. Erysipelas.
12	"	May 12, 1848	Seaman	M. 35	"	1 h.	Flap	Death	11 d.	do. Erysipelas of scalp and stump.
13	"	Oct. 6, 1849	Laborer	M. 25	"	5 h.	"	Recovery	235 d.	do. Erysipelas of scalp and stump.
14	Townsend	June 1, 1850	"	M. 35	"	2 h.	"	Death	18 d.	do. Double amputation. Intoxication.
15	"	Sept. 14, 1850	"	M. 25	"	3 h.	Circular	Recovery	74 d.	do. Sloughing of flaps.
16	J. M. Warren	April 1, 1851	"	M. 57	"	17 h.	Liston's	"	75 d.	do.
17	Townsend	Aug. 1, 1851	Domestic	M. 18	"	1 h.	Circular	"	169 d.	Right thigh also amputated.
18	"	Aug. 22, 1851	Minor	M. 18	"	1 h.	"	"	81 d.	Delirium tremens.
19	"	Oct. 17, 1851	Teamster	M. 30	"	3 h.	"	"	59 d.	R. R. accident. [from collapse.
20	Farkman	Nov. 17, 1851	Laborer	M. 33	"	2 h.	"	"	1 d.	do. Fract. of skull and forearm. Died
21	Clark	Nov. 17, 1852	Carpenter	M. 33	"	2 h.	Flap	Death	42 d.	do.
22	Calot	Jan. 21, 1854	Seaman	M. 19	"	2 h.	"	Recovery	57 d.	R. R. accident. Fracture of nose.
23	J. M. Warren	Mar. 9, 1854	Somecenter	M. 32	"	2 h.	"	"	58 d.	" " Comp. com. fract. of skull. D. fr. comp.
24	Clark	June 15, 1854	Laborer	M. 18	"	2 h.	"	"	3 d.	" " Erysipelas.
25	"	June 21, 1854	"	M. 24	"	2 h.	"	"	7 d.	" " " "
26	"	Aug. 7, 1854	Trader	M. 21	"	2 h.	"	Death	31 d.	" " Comp. fract. of leg. D. fr. pyemia.
27	Farkman	Aug. 7, 1854	"	M. 21	"	2 h.	Circular	Recovery	36 d.	R. R. accident. Secondary hemorrhage.
28	"	Dec. 12, 1854	Engineer	M. 22	"	2 h.	"	Death	36 d.	(thotonos and spasms.
29	Bigelow	Dec. 12, 1854	Laborer	M. 22	"	2 h.	"	Recovery	125 d.	do. R. R. accident. Lisfranc's amp. of 1 foot. Opi-
30	Calot	Dec. 16, 1854	Seaman	M. 33	"	2 h.	"	"	60 d.	do. Delirium tremens. Not fully cleared.
31	"	Feb. 16, 1855	Minor	M. 16	"	2 h.	"	"	11 d.	R. R. accident. Amp. of thumb. Sloughing of fl.
32	J. M. Warren	Feb. 24, 1855	Book-pedlar	F. 26	"	3 h.	"	Death	49 d.	do. Obstinate vomiting.
33	Calot	May 23, 1855	Laborer	M. 19	"	3 h.	"	Recovery	61 d.	do. Phlebotomy.
34	"	Dec. 26, 1855	Domestic	F. 20	"	2 h.	"	"	7 d.	do. Intoxication & great loss of blood. D. fr. collapse.
35	Clark	May 18, 1856	Nariner	M. 55	"	20 h.	"	Death	30 d.	
36	Townsend	Aug. 12, 1856	Mechanic	M. 40	"	14 h.	"	"	29 d.	
37	J. M. Warren	April 15, 1857	Clerk	M. 19	"	12 h.	"	"	30 d.	

Table 15 (continued.) AMPUTATIONS OF LEG.—TRAUMATIC—PRIMARY.

No.	Operator.	Date.	Occupation.	Sex and Age.	Comp.	Nature of Injury.	Dura- con.	Amputation. Method.	Place.	Result.	Length of Time.	Details.
38	Clark	Nov. 4, 1857	Merchant	M. 60						Recovery	32 d.	Del. tremens. Extensive sloughing. Erysipelas.
39	Cabot	June 10, 1858	Minor	F. 7		fract. of ankle	15 h.	Flap	"	Recovery	43 d.	R. R. accident.
40	Townsend	July 12, 1858	Shoemaker	M. 20	"	"	2 h.	Circular	"	"	120 d.	"
41	"	July 12, 1858	Shoemaker	M. 32	"	"	2 h.	Circular	"	Recovery	83 d.	R. R. accident.
42	Townsend	Oct. 22, 1858	Mason	M. 32	"	"	2 h.	Circular	"	"	120 d.	"
43	J. M. Warren	June 17, 1859	Washerwoman	F. 46	"	"	1 h.	Flap	"	Death	116 d.	Tetanus.
44	Cabot	June 23, 1859	Minor	F. 19	"	"	2 h.	Circular	"	Recovery	13 d.	R. R. accident. Hysteria.
45	"	July 4, 1859	Laborer	M. 35	"	"	2 h.	"	"	Recovery	75 d.	" " Scalp wound. D. from lesions of brain.
46	Townsend	July 10, 1859	Seaman	M. 35	"	"	2 h.	"	"	Recovery	15 h.	" " D. from collapse.
47	Gay	July 13, 1859	Laborer	M. 68	"	"	2 h.	"	"	Death	96 d.	" " D. from collapse.
48	"	Aug. 27, 1861	Minor	F. 2	"	"	2 h.	"	"	Recovery	75 d.	" " Del. tremens. Resect'n of end of bones.
49	"	Aug. 27, 1861	Laborer	M. 30	"	"	2 h.	"	"	Recovery	83 d.	" " R. R. accident.
50	Cabot	Dec. 25, 1861	Blacksmith	M. 36	"	"	2 h.	"	"	"	58 d.	" " R. R. accident.
51	Gay	Oct. 27, 1862	Minor	M. 14	"	"	3 h.	"	"	"	24 d.	" " R. R. accident.
52	J. M. Warren	Oct. 27, 1862	Ropecmaker	M. 22	"	"	5 h.	"	"	"	11 d.	" " Secondary hemorrhages.
53	"	May 12, 1863	Minor	M. 9	"	"	2 h.	Flap	"	Death	24 d.	" " R. R. accident.
54	Clark	July 13, 1863	Laborer	M. 65	"	"	2 h.	Circular	"	Recovery	71 d.	" " R. R. accident.
55	Hodges	July 13, 1863	Engineer	M. 22	"	"	2 h.	"	"	Recovery	16 d.	" " R. R. accident. Scalp. Carried home by friends.
56	"	Aug. 1, 1863	Laborer	M. 28	"	"	2 h.	"	"	Recovery	94 d.	" " Amp. of rt. thigh. Resec. of end of fem. 3 m. later.
57	"	Sept. 12, 1863	Carpenter	M. 48	"	"	3 h.	"	"	Death	6 h.	" " Double amputation. D. from shock.
58	"	Sept. 15, 1863	Laborer	M. 32	"	"	3 h.	"	"	Recovery	26 d.	" " Diarrhoea.
59	"	Sept. 29, 1863	Soldier	M. 24	"	"	3 h.	"	"	Recovery	64 d.	" " R. R. accident. Delirium.
60	"	Oct. 29, 1863	Laborer	M. 47	"	"	2 h.	"	"	Death	8 d.	" " Died from pyæmia.
61	Cabot	Feb. 11, 1864	"	M. 35	"	"	3 h.	Flap	"	Recovery	22 d.	" " Double amputation.
62	Bigelow	Feb. 20, 1864	"	M. 33	"	"	16 h.	"	"	Death	182 d.	" " Double amp. Tubercles and pyæmia shown at aut.
63	Clark	April 2, 1864	Soldier	M. 30	"	"	3 h.	"	"	Death	21 d.	" " R. R. accident. Amp. of arm in P. D. fr. shock.
64	Hodges	April 16, 1864	Minor	M. 39	"	"	2 h.	"	"	Recovery	80 d.	" " Laceration of neck, thigh, &c. fr. explosion of shell.
65	Cabot	Aug. 4, 1864	Laborer	M. 22	"	"	2 h.	Circular	"	Death	3 d.	" " Delirium tremens. Sloughing of flaps.
66	Bigelow	Aug. 8, 1864	Blacksmith	M. 35	"	"	2 h.	Flap	"	Recovery	8 h.	" " Fracture of ulna. Died from shock.
67	Clark	April 18, 1865	Laborer	M. 30	"	"	2 h.	"	"	Recovery	82 d.	" " R. R. accident. Intoxication. Sloughing of flaps.
68	"	June 20, 1865	"	M. 31	"	"	2 h.	"	"	Death	86 d.	" " " " " " " "
69	"	June 28, 1865	"	M. 56	"	"	2 h.	"	"	Recovery	94 d.	" " " " " " " "
70	Gay	Aug. 4, 1865	Seaman	M. 35	"	"	2 h.	Circular	"	Recovery	69 d.	" " " " " " " "
71	Hodges	Sept. 19, 1865	Driver	M. 32	"	"	2 h.	"	"	Death	72 d.	" " " " " " " "
72	Gay	Nov. 2, 1865	"	M. 19	"	"	2 h.	"	"	Recovery	99 d.	" " " " " " " "
73	Bigelow	Nov. 2, 1865	Boatmaker	M. 24	"	"	2 h.	"	"	Death	72 d.	" " " " " " " "
74	Clark	Nov. 2, 1865	Brakeman	M. 37	"	"	2 h.	"	"	Recovery	95 d.	" " " " " " " "
75	Gay	Nov. 2, 1865	"	M. 19	"	"	2 h.	"	"	Death	43 d.	" " " " " " " "
76	Clark	Nov. 2, 1865	"	M. 37	"	"	2 h.	"	"	Recovery	74 d.	" " " " " " " "
77	Hodges	Oct. 17, 1867	Laborer	M. 37	"	"	2 h.	Flap	"	Recovery	83 d.	" " " " " " " "
78	Bigelow	Jan. 15, 1868	Mechanic	F. 6	"	"	2 h.	"	"	Death	24 d.	" " " " " " " "
79	Cabot	Jan. 20, 1868	Minor	F. 38	"	"	2 h.	"	"	Recovery	24 d.	" " " " " " " "
80	Hodges	Mar. 4, 1868	Teamster	M. 28	"	"	2 h.	"	"	Death	24 d.	" " " " " " " "
81	Hodges	May 26, 1868	Laborer	M. 60	"	"	2 h.	"	"	Recovery	24 d.	" " " " " " " "
82	Coolidge	June 6, 1868	Shoemaker	M. 42	"	"	2 h.	"	"	Death	24 d.	" " " " " " " "
83	Clark	June 6, 1868	Laborer	M. 43	"	"	2 h.	"	"	Recovery	24 d.	" " " " " " " "
84	Clark	June 26, 1868	Sawyer	M. 23	"	"	2 h.	"	"	Death	24 d.	" " " " " " " "
85	Coolidge	Aug. 6, 1868	Minor	M. 9	"	"	2 h.	"	"	Recovery	24 d.	" " " " " " " "
86	Gay	Nov. 6, 1868	Trader	M. 33	"	"	2 h.	"	"	Death	20 d.	" " " " " " " "



MASSACHUSETTS GENERAL HOSPITAL.

AMPUTATIONS OF LEG.—TRAUMATIC—PRIMARY.

Table 15 (concluded.)

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
87	Bigelow	Jan. 6, 1869	Laborer	M. 18	Comp. com. fract. of ankle	2 h.	Circular	Recovery	187 d.	Resection of end of bones. Sec. hemorrhages.
88	Coillidge	June 14, 1869	Minor	M. 2	" " " " "	2 h.	Circular	Death	4 d.	R. R. accident. Double amputation.
89	Hodges	Sept. 23, 1869	Flagman	M. 37	" " " " "	1 h.	Circular	Recovery	69 d.	Comp. com. fr. of leg. Del. trem.
90	Gay	Oct. 28, 1869	Laborer	M. 18	" " " " "	2 h.	"	Recovery	58 d.	R. R. accident. 4 toes amputated. Erysipelas.
91	Cabot	Dec. 14, 1869	Painter	M. 28	com.	"	"	"	30 h.	" " Extensive scalp wound.
92	Hodges	Mar. 8, 1870	Laborer	M. 31	" " " " "	2 h.	"	Death	30 h.	" " Convulsions. Died fr. collapse.
93	Hodges	July 30, 1870	Minor	M. 19	" " " " "	3 h.	Flap	Recovery	54 d.	Erysipelas.
94	Gay	Aug. 26, 1870	Laborer	M. 9	com.	2 h.	Circum.	"	162 d.	Secondary hemorrhage.
95	Hodges	Oct. 29, 1870	Minor	M. 9	" " " " "	2 h.	"	"	147 d.	Laceration of other foot.
96	"	Nov. 3, 1870	Shoemaker	M. 19	" " " " "	3 h.	Flap	"	165 d.	R. R. acc. Hos. gangr. Resec. of end of bones.
97	Recovered, 63		Deaths from Exhaustion,	17						R. R. accidents, 37, of which 18 were fatal.
	Died, 33		Comp. com. fr. of ankle	4						
	96—Total 97		" " " " "	4						
	Ratio of mortality, 34.37		" " " " "	3						
			Comp. com. fr. of leg	2						
			" " " " "	1						
			Peritonitis,	1						

AMPUTATIONS OF LEG.—TRAUMATIC—SECONDARY.

Table 16.

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
1	J. C. Warren	Feb. 4, 1852	Laborer	M. 60	Comp. fracture of leg	12 d.	Circular	Recovery	6 d.	Delirium tremens. Gangrene.
2	"	Nov. 10, 1857	"	M. 30	" " " "	11 d.	"	Recovery	69 d.	Alco. habit. " " " "
3	G. Odia	June 3, 1859	Shoemaker	M. 37	" " " "	19 d.	"	Death	71 d.	" " " "
4	J. C. Warren	Feb. 26, 1830	Laborer	M. 27	" " " "	28 d.	"	Recovery	82 d.	Delirium tremens.
5	Hayward	June 9, 1831	Carpenter	M. 49	" " " "	10 d.	"	Death	33 d.	R. R. accident. Gangrene.
6	J. C. Warren	Feb. 8, 1834	Laborer	M. 24	Comp. com. fracture of foot	10 d.	"	Recovery	25 d.	Much sloughing before operation.
7	J. C. Warren	July 17, 1848	Painter	M. 21	Comp. dislocation of ankle	24 mo.	"	Recovery	31 d.	R. R. accident. Resection of end of bones.
8	Bigelow	Sept. 25, 1849	Laborer	M. 21	Comp. com. fr. of leg	15 d.	"	Death	7 d.	Very nervous temperament. Tetanus.
9	Hayward	Nov. 7, 1848	Laborer	M. 20	" " " "	3 d.	"	Recovery	83 d.	R. R. accident. Phlebotomy.
10	Bigelow	Nov. 7, 1848	Minor	M. 24	" " " "	10 d.	Flap	"	134 d.	Scalp injury. Phlebotomy.
11	J. M. Warren	Dec. 11, 1848	Laborer	M. 20	" " " "	34 d.	"	"	140 d.	Erysipelas before op. Resection of end of bones.
12	Parkman	Sept. 15, 1850	"	M. 25	" " " "	22 d.	"	"	62 d.	Delirium tremens. Neuralgia.
13	J. M. Warren	Sept. 15, 1850	"	M. 22	" " " "	11 d.	Circular	"	15 d.	Del. trem. D. fr. pyemia, as shown at aut.
14	J. M. Warren	April 30, 1851	Seaman	M. 31	" " " "	20 d.	Flap	Death	7 d.	Delirium tremens. D. fr. pyemia.
15	Parkman	Sept. 29, 1852	Farmer	M. 33	com.	10 d.	"	Recovery	18 d.	" " Erysipelas. Not fully healed.
16	Bigelow	Jan. 21, 1854	Mason	M. 65	" " " "	22 d.	Circular	"	189 d.	Imbeddity.
17	Bigelow	Sept. 19, 1854	Carpenter	M. 22	" " " "	40 d.	"	"	86 d.	Intoxication.
18	Townsend	Jan. 12, 1855	Mechanic	M. 28	dislocation of ankle	19 d.	"	"	26 d.	R. R. accident. Refused to submit to prim. op.
19	Cabot	Feb. 15, 1855	Laborer	M. 38	com. fracture of leg	12 d.	Flap	Death	93 d.	Sloughing of flaps.
20	J. M. Warren	April 30, 1857	Minor	M. 60	" " " "	8 d.	Circular	Recovery	142 d.	Scalp wounds. Secondary hem. Gangrene.
21	"	Aug. 20, 1857	Laborer	M. 23	" " " "	21 d.	Flap	"	32 d.	
22	J. M. Warren	Dec. 22, 1857	Farmer	M. 60	" " " "	2 mo.	Circular	"		

Table 16 (concluded.)

AMPUTATIONS OF LEG.—TRAUMATIC—SECONDARY.									
No	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation. Method. Place.	Result.	Length of Time.
27	Bigelow	Jan. 23, 1858	Housewife	F. 35	Comp. com. fract. of ankle	17 d.	Circular	Death	17 d.
28	Cabot	Dec. 4, 1858	Tailor	M. 49	" " " leg	7 w.	"	Recovery	59 d.
29	"	Jan. 24, 1860	Teamster	M. 65	" " " "	18 d.	Flap	Recovery	187 d.
30	"	Feb. 18, 1860	Charwoman	M. 60	" " " "	18 d.	Circular	Death	10 d.
31	J. M. Warren	June 28, 1860	Laborer	M. 32	Comp. com. fract. of ankle	38 d.	Flap	Recovery	239 d.
32	T. Wend	June 28, 1860	Laborer	M. 32	Comp. com. fract. of leg	20 d.	Circular	Death	29 d.
33	Clark	Aug. 9, 1861	Miner	M. 44	Comp. com. fract. of leg	20 d.	Flap	Recovery	29 d.
34	Townsend	Aug. 12, 1861	"	M. 11	Comp. com. fract. of leg	16 d.	Circular	"	50 d.
35	"	Aug. 31, 1861	"	M. 4	Laceration of foot	3 d.	"	Death	4 d.
36	Cabot	Nov. 1, 1861	Seaman	M. 40	Comp. com. fract. of leg	29 d.	"	Recovery	26 d.
37	"	Dec. 24, 1862	Minor	M. 5	Communicated fract. of ankle	13 d.	"	"	"
38	Clark	Dec. 24, 1862	Fireman	M. 23	Communicated fract. of foot	28 d.	"	Death	53 d.
39	Bigelow	Aug. 13, 1863	Food. student	M. 21	Comp. disloc. at ankle	15 mo.	"	"	8 d.
40	Cabot	Nov. 11, 1863	Shoemaker	M. 55	Comp. com. fract. of leg	29 d.	"	Death	8 d.
41	"	April 21, 1864	Cabinetmaker	M. 55	Comp. com. fract. of leg	17 d.	Flap	Recovery	60 d.
42	"	Dec. 28, 1864	"	M. 53	Comp. fracture of leg	55 d.	Circular	"	26 d.
43	Hodges	Aug. 19, 1865	Fireman	M. 19	Comp. com. fract. of foot	14 d.	Flap	Death	13 d.
44	Bigelow	Nov. 11, 1865	Cabinetmaker	M. 22	Comp. com. fract. of ankle	14 d.	"	Recovery	64 d.
45	"	Dec. 21, 1865	Laborer	M. 35	Comp. com. fract. of foot	11 d.	"	Death	50 d.
46	Cabot	Dec. 26, 1865	Tailor	M. 21	Comp. com. fract. of foot	19 mo.	Flap	Recovery	93 d.
47	"	Nov. 12, 1865	Seaman	M. 18	Communicated fract. of ankle	21 d.	Circular	Death	12 d.
48	Hodges	Nov. 12, 1865	Tailor	M. 26	Comp. com. fract. of leg	21 d.	"	Recovery	33 d.
49	Bigelow	Feb. 6, 1869	Laborer	M. 56	Comp. com. fracture of foot	9 d.	Flap	Death	67 d.
50	Cabot	Feb. 19, 1869	Minor	M. 12	Comp. com. fracture of foot	6 mo.	"	Recovery	33 d.
51	Gay	Aug. 18, 1870	Clerk	M. 19	Comp. com. fracture of foot	9 d.	Flap	Death	41 d.
52	Cabot	Dec. 23, 1870	Laborer	M. 27	Laceration of foot	1 mo.	Circular	"	"

Recovered, 34  
Died, 18—Total, 62  
Ratio of mortality, 34.61 per cent.

Table 17.

## AMPUTATIONS OF LEG.—PATHOLOGICAL.

AMPUTATIONS OF LEG.—PATHOLOGICAL.									
No.	Operator.	Date.	Operator.	Sex and Age.	Disease.	Duration.	Amputation. Method. Place.	Result.	Length of Time.
1	J. C. Warren	Dec. 19, 1823	Sailor	M. 21	Frost-bite of feet	13 d.	Circular	Recovery	61 d.
2	"	May 22, 1825	Merchant	M. 21	Chronic dis. of ankle-joint	13 d.	"	"	12 y.
3	"	Dec. 17, 1825	Hickman	M. 11	Necrosis of tibia	12 y.	Flap	"	20 y.
4	"	Apr. 17, 1826	"	M. 21	"	10 y.	"	"	30 d.
5	"	Apr. 5, 1829	Housewife	F. 60	Tumor of leg	10 y.	"	"	63 d.
6	G. Otis	Feb. 11, 1830	Laborer	M. 44	Ulcers of leg and foot	20 y.	Circular	"	47 d.
7	J. C. Warren	Dec. 18, 1830	Seaman	M. 43	"	14 y.	"	"	83 d.
8	"	Jan. 19, 1833	Baker	M. 67	"	26 y.	"	"	62 d.
9	Hayward	Mar. 2, 1833	Silversmith	M. 19	Deformity of foot	Cong.	"	"	32 d.
10	"	Nov. 12, 1834	Shoemaker	M. 37	Ulcer of stump	3 y.	"	"	33 d.
11	J. C. Warren	Feb. 6, 1838	Farmer	M. 43	"	14 y.	"	Death	20 d.
12	Hayward	Feb. 13, 1838	Chaise-maker	M. 38	" leg	4 y.	"	Recovery	40 d.
13	"	Dec. 13, 1838	"	M. 28	Caries of tibia	4 y.	"	"	20 d.
14	"	Jan. 21, 1837	Wheelwright	M. 43	Frost-bite of feet	24 d.	"	"	50 d.

Details.  
Double amputation. One flap.  
Nearly healed. Died one month later.  
Chills and fever. Growth appearing in groin.  
Alcoholic habit.  
Isfranc's amp. of foot for frost-bite.  
D. from pyemia.  
Secondary hemorrhage.  
Erysip. Resec. of end of bones.  
Intoxication.

## AMPUTATIONS OF LEG.—PATHOLOGICAL.

Table 17 (continued.)

No.	Operator.	Date.	Occupation.	Sex and Age.	Disease.	Duration.	Amputation.	Result.	Length of Time.	Details.
15	Hayward.	Nov. 23, 1857	Shoebinder	F. 25	Deformity of ankle	21 y.	"	Recovery	43 d.	Deformity followed blow on head. Hysteria.
16	"	April 17, 1858	Overseer	M. 38	Ulcer of leg	18 y.	"	"	58 d.	Optum habit. Malacal fever. Scald. Erys.
17	Townsend	Nov. 16, 1858	Laborer	M. 29	Tumor of leg	4 y.	"	"	55 d.	[Sec'y hemorrh. Lig. of fem. artery.]
18	"	Sept. 18, 1860	Mariner	M. 18	Ulcer of stump	16 mo.	"	"	32 d.	Foot seized by shark. Prim. amp. with razor.
19	"	Oct. 15, 1862	Farmer	M. 72	" " leg	18 mo.	"	"	28 d.	Conical stump.
20	Hayward	Nov. 13, 1862	Teamster	M. 42	" " " "	7 y.	"	"	28 d.	"
21	Townsend	Nov. 13, 1862	Teamster	M. 60	Necrosis of tibia	20 y.	"	"	38 d.	"
22	"	Dec. 20, 1864	Domestic	M. 60	Necrosis of tibia	20 y.	"	"	38 d.	"
23	Hayward	Dec. 2, 1867	"	F. 66	Chronic dis. of ankle-joint	8 y.	"	"	91 d.	Erysipelas.
24	J. C. Warren	Jan. 14, 1867	Mariner	M. 19	Tumor of leg	7 mo.	"	"	230 d.	"
25	J. C. Warren	Aug. 23, 1868	Mechanic	M. 23	Chronic dis. of ankle-joint	1 y.	"	"	32 d.	Spina bifida. Tenotomy of other foot later.
26	Parkman	April 7, 1869	Minor	F. 17	Necrosis of tarsus	16 y.	Flap	"	27 d.	Erysipelas.
27	J. M. Warren	May 2, 1869	Domestic	F. 28	" " "	1 y.	"	"	69 d.	"
28	Hayward	Jan. 12, 1871	Seaman	M. 23	Caries of tarsus	15 y.	"	"	21 d.	"
29	J. M. Warren	April 12, 1871	"	M. 21	Chronic dis. of ankle-joint	16 mo.	Circular	"	70 d.	Rheumatism.
30	Parkman	July 8, 1871	Mechanic	M. 64	Ulcer of leg	9 y.	"	"	30 d.	"
31	Townsend	July 8, 1871	"	M. 64	Ulcer of leg	9 y.	"	"	40 d.	"
32	Bigelow	Aug. 29, 1874	Laborer	M. 30	" of stump	9 mo.	"	"	37 d.	Pulmonary complication.
33	"	Dec. 23, 1874	"	M. 22	Chronic dis. of ankle-joint	1 y.	"	"	23 d.	Syme's amp. before entrance. Hosp. gang.
34	Townsend	May 16, 1875	Mechanic	M. 56	Ulcer of leg	17 y.	"	Death	35 d.	"
35	"	Jan. 26, 1876	"	M. 26	Gangrene of stump	15 d.	"	Recovery	65 d.	"
36	Bigelow	May 16, 1876	Farmer	M. 43	Caries of tarsus	10 y.	"	"	42 d.	"
37	J. M. Warren	April 23, 1877	"	M. 83	Necrosis of tibia	43 y.	"	"	123 d.	Sec. hemorrhages. Obstinate vomiting.
38	Townsend	April 23, 1877	Mechanic	M. 83	" " "	9 y.	"	"	109 d.	"
39	"	Aug. 29, 1877	Laborer	M. 39	Ulcers of leg	7 y.	"	"	123 d.	Erysipelas.
40	"	Oct. 13, 1877	"	F. 56	" " "	10 y.	"	"	68 d.	Necrosis of end of bone.
41	Bigelow	Nov. 26, 1877	Housekeeper	F. 56	" " "	4 mo.	Flap	"	144 d.	Resulting fr. lig. of fem. art. for popliteal } aneurism. Erysipelas. D. fr. pyæmia.
42	"	Dec. 26, 1877	Mechanic	M. 22	Caries of tarsus	4 mo.	Circular	Recovery	82 d.	Optum habit.
43	J. M. Warren	Nov. 26, 1877	"	M. 60	Gangrene of foot	1 y.	"	"	69 d.	Erysipelas.
44	Townsend	May 22, 1878	Laborer	M. 46	Caries of tarsus	4 mo.	"	"	53 d.	"
45	Gay	July 16, 1878	Lawyer	M. 47	" " "	28 y.	Flap	"	53 d.	"
46	Gay	July 16, 1878	Teacher	M. 30	Ankylosis at knee	2 y.	"	"	53 d.	"
47	Townsend	Oct. 14, 1879	Blacksmith	M. 28	Caries of tarsus	4 mo.	"	"	53 d.	"
48	Chabot	Oct. 14, 1879	Blacksmith	M. 28	Post-bite of foot	9 d.	"	"	53 d.	"
49	"	Jan. 9, 1880	Teamster	M. 38	" " "	9 d.	"	"	53 d.	"
50	"	Jan. 17, 1880	Teamster	M. 27	Post-bite of foot	9 d.	"	"	53 d.	"
51	Clark	Mar. 24, 1880	Farmer	M. 17	Caries of tarsus	9 mo.	"	Death	141 d.	"
52	J. M. Warren	April 13, 1880	Minor	F. 13	" " "	6 y.	Syme's	Recovery	28 d.	Amp. of toe of left foot on 97th day.
53	Bigelow	July 30, 1880	Tanner	M. 18	" " "	6 y.	"	"	35 d.	Slinging of flaps. Obstinate vomiting.
54	Gay	Aug. 26, 1880	Farmer	M. 16	" " "	10 mo.	Circular	"	24 d.	Congenital talipes varus.
55	Gay	Sept. 14, 1880	Clerk	M. 24	" " "	3 y.	Flap	"	59 d.	"
56	Townsend	Oct. 13, 1880	Farmer	F. 34	Ulcers of leg	12 y.	"	"	70 d.	Hospital gangrene.
57	Bigelow	Nov. 13, 1880	Domestic	F. 34	Ulcers of leg	12 y.	"	"	63 d.	Atheroma. Sec'y hemorrh. D. fr. pyæmia.
58	Chabot	Dec. 6, 1880	Furnace	M. 26	Necrosis of tibia	19 y.	"	Recovery	137 d.	Sciatica.
59	J. M. Warren	Oct. 12, 1881	Minor	F. 15	Caries of tarsus	8 y.	Flap	"	34 d.	"
60	Clark	Mar. 3, 1882	Fisherman	M. 26	Gangrene of foot	39 y.	"	"	79 d.	Following fracture of femur.
61	J. M. Warren	May 27, 1882	Housewife	F. 64	Ulcers of leg and foot	20 y.	"	Recovery	209 d.	Erysipelas. Profuse secondary hemorrhage.
62	"	May 13, 1883	Butcher	M. 57	Necrosis of tibia	20 y.	"	Death	14 d.	Profuse sec'y hemorrh. necros. lig. of fem. art.
63	"	Mar. 26, 1883	Farmer	M. 20	" " "	7 mo.	"	Death	"	"

AMPUTATIONS OF LEG.—PATHOLOGICAL.

Table 17 (continued.)

No.	Operator.	Date.	Occupation.	Sex and Age.	Nature of Injury.	Duration.	Amputation.	Result.	Length of Time.	Details.
64	J. M. Warren	July 10, 1863	Clerk	M. 24	Necrosis of tibia	13 y.	Circular	Death	35 d.	Jaundice. Secondary hemorrh. D. fr. pyæmia.
65	Clark	Sept. 18, 1863	Farmer	M. 25	Ulcer of stump	14 y.	Flap	Recovery	35 d.	Primary amputation for gangrene.
66	J. M. Warren	Feb. 9, 1864	Jettesant	M. 28	Conical stump	16 mo.	"	"	47 d.	Chopart's amp. D. fr. pyæmia.
67	J. M. Warren	May 23, 1864	Seaman	M. 20	Gangrene of foot	25 d.	Circular	Death	20 d.	Sloughing of flaps. D. fr. pyæmia.
68	Clark	June 21, 1864	Clerk	M. 20	Gangrene of foot	1 y.	"	Recovery	55 d.	Chopart's amp. of other foot. Not fully healed.
69	Hodges	June 29, 1864	Turner	M. 25	Ulcer of stump	25 y.	Flap	"	73 d.	Primary amp. for bullet wound.
70	Hodges	June 29, 1864	Laborer	M. 20	Necrosis of tibia	25 y.	"	"	40 d.	"
71	Hodges	July 7, 1864	Laborer	M. 20	Necrosis of tibia	25 y.	"	"	34 d.	"
72	Clark	July 26, 1864	Soldier	M. 40	Conical stump	7 mo.	Flap	"	37 d.	"
73	Gay	Aug. 1, 1864	Spinner	F. 24	Atrophy of leg and foot	22 y.	Circular	Death	139 d.	Hospital gangrene.
74	J. M. Warren	Sept. 30, 1864	Clerk	M. 20	Tumor of leg	1 y.	Flap	Recovery	39 d.	Prolapse secondary hemorrhages.
75	J. M. Warren	Oct. 1, 1864	Seaman	M. 20	Caries of tibia	1 y.	Flap	"	39 d.	Erysipelas.
76	Bigelow	Oct. 20, 1864	Seaman	M. 19	Necrosis of tibia	12 y.	Flap	"	77 d.	"
77	Clark	June 2, 1865	Minor	M. 12	Gangrene of leg and foot	30 d.	"	"	71 d.	"
78	Gay	July 21, 1865	Clerk	M. 29	Necrosis of tarsus	3 y.	Circular	Death	9 d.	Following fract. of thigh and contusion of foot.
79	Bigelow	Nov. 11, 1865	Spinner	F. 45	Caries of tarsus	2 y.	Flap	Recovery	60 d.	Same patient as No. 135. D. fr. pyæm. as sh. at aut.
80	Hodges	Nov. 20, 1865	Minor	M. 7	Gangrene of leg	2 y.	Flap	"	27 d.	Erysipelas.
81	J. M. Warren	Mar. 22, 1866	Tailor	M. 48	Deformity of leg	23 y.	Circular	"	27 d.	Resulting fr. fracture.
82	Clark	May 1, 1866	Seaman	M. 27	Ulcer of stump	14 y.	Flap	Death	27 d.	"
83	Clark	May 1, 1866	Wavner	F. 57	Necrosis of tibia	14 y.	"	Recovery	16 d.	Chopart's amp. 1½ years ago for gangrene. Erysip.
84	"	May 16, 1866	Lavender	M. 27	Ulcer of stump	9 mo.	Flap	"	49 d.	Primary amp. at ½ for gangrene 8 years ago.
85	J. M. Warren	May 22, 1866	La. Colonel	M. 26	"	2 y.	Flap	"	34 d.	" " " 2 years ago. Intermittent fever.
86	Hodges	Sept. 18, 1866	Farmer	M. 23	"	2 y.	Flap	Death	39 d.	"
87	Hodges	Dec. 2, 1866	Laborer	M. 60	Necrosis of tibia	40 y.	Flap	Recovery	32 d.	Slough of flaps. [Circumcision. Erysip.
88	Bigelow	Dec. 15, 1866	Bootmaker	M. 19	Ulcer of leg	24 y.	Circular	Death	25 d.	Prim. amp. 2½ yrs. ago in for bullet w'd. Syph.
89	Hodges	Dec. 15, 1866	Operative	F. 27	Caries of tarsus	1 y.	Flap	Recovery	25 d.	" " " 2 years ago. Intermittent fever.
90	Calot	Dec. 20, 1866	Barber	M. 28	Ulcer of stump	6 mo.	Circular	"	32 d.	"
91	J. M. Warren	Jan. 3, 1867	Widow	M. 22	"	23 y.	Flap	"	32 d.	"
92	"	Jan. 3, 1867	Widow	M. 22	"	23 y.	Circular	"	32 d.	"
93	Bigelow	May 15, 1867	Minor	M. 16	"	6 mo.	Circular	"	37 d.	"
94	Gay	Sept. 9, 1867	Painter	M. 27	Tumor of foot	5 y.	"	"	40 d.	Amputation 21 mos. ago. Bullet wound.
95	Gay	Sept. 16, 1867	Mechanic	M. 32	Ulcer of stump	14 y.	Flap	"	47 d.	"
96	Hodges	Oct. 3, 1867	Operative	F. 20	Ankylosis at knee	10 y.	Circular	"	81 d.	Prim. amp. at ½ for gunshot wound.
97	Gay	Oct. 3, 1867	Minor	F. 20	Painful stump	2 y.	"	"	87 d.	Excision 2 mos. earlier. Resection of end of bones
98	Gay	Oct. 16, 1867	Mechanic	M. 32	Caries of tarsus	1 y.	"	"	214 d.	Sloughing of flaps. Resec. of end of bones 1 y. lat.
99	Calot	Nov. 21, 1867	Widow	F. 28	Ulcer of leg	5 y.	"	"	37 d.	Following amp. of toe. Resec. of end of bones.
100	Bigelow	Nov. 21, 1867	Widow	F. 28	Ulcer of leg	2 mo.	Flap	"	42 d.	"
101	Bigelow	Feb. 12, 1868	Harrier	F. 23	Gangrene of foot	2 mo.	Circular	"	29 d.	"
102	Clark	Feb. 12, 1868	Peeler	M. 23	Painful stump	4 y.	Flap	"	29 d.	Prim. amp. at ½—4 yrs. ago at the war.
103	Clark	Mar. 30, 1868	Shoemaker	M. 27	Pes equinus	17 y.	Syme's	"	62 d.	Tamotomy failed to remove deformity.
104	Clark	May 30, 1868	Thimisher	M. 25	Ulcer of stump	6 mo.	Flap	"	42 d.	Primary amp. 5 years ago at ½ for bullet wound.
105	Bigelow	June 26, 1868	Domestic	F. 18	Painful tarsus	2 mo.	Circular	"	98 d.	Amp. 17 yrs. ago, at medio-tarsal artic. for gang.
106	Coolidge	July 13, 1868	Cooper	M. 36	Caries of tarsus	2 mo.	Circular	"	41 d.	"
107	Coolidge	July 13, 1868	Thimisher	M. 26	Ulcer of stump	4 y.	Flap	"	23 d.	Amp. 4 years ago at ½ for bullet wound.
108	Gay	Aug. 27, 1868	Laborer	M. 24	Necrosis of tibia	2 mo.	Circular	"	29 d.	Erysipelas.
109	Bigelow	Oct. 1, 1868	Thimisher	M. 23	Necrosis of tibia	2 mo.	Circular	"	30 d.	Alone healed over.
110	Hodges	Dec. 1, 1868	Widow	F. 19	Ulcer of stump	1 y.	Flap	"	30 d.	Primary amp. at ½—1 for ulcer. (Vide Case 99.)
111	Gay	Dec. 1, 1868	Widow	F. 19	Ulcer of stump	1 y.	Flap	"	30 d.	"
112	Calot	Dec. 8, 1868	Minor	M. 14	Necrosis of tibia	4½ y.	"	"	34 d.	"

### AMPUTATIONS OF LEG.—PATHOLOGICAL.

The number of deaths from each cause is as follows:	
Exhaustion,	98-54.44 per cent. of fatal cases
Pneumia,	43=23.33 "
Collapse,	21=11.61 "
Shock,	" " "
General lesion,	8=4.44 "
Cerebral compression,	2 "
" "	2 "
Peritonitis,	23 "
Tetanus,	2 "
Chloroform,	2 "
Malignant growth,	1 "
Unknown,	1 "

**Total, 180 deaths in 692 cases=26.01 per cent. of mortality, exclusive of 7 cases in which the result is unknown or unrecorded.**



# AMPUTATIONS AT THE

This rate of mortality in Table 17 may be contrasted with that of Sir James Y. Simpson, calculated for British Hospitals with 100—200 beds, 23 per ct. (*Lancet*, Sept. 25, 1869, p. 431), with that of Mr. G. W. Callender for Country Hospitals having 150—270 beds, 18.86 per ct. (*Lancet*, Sept. 18, 1869, p. 420).

It may also be noted that the death rate from pyæmia compares very favorably with that reduced by Mr. Bryant from 500 cases of amputation in Guy's Hospital, in which it was 42 per cent. of all fatal cases. Sir J. Y. Simpson in his articles on "Hospitalism" holds that "50 per cent. of the deaths after amputation in our large hospitals are the result of pyæmia." (*Lancet*, Oct. 16, 1869, p. 538.)

The Massachusetts General Hospital contains 175 beds, including both medical and surgical, arranged in wards varying in capacity from 7 to 21 beds, and an out-building used for a foul-ward.

*Tabular View of Results at the N. York, Pennsylvania and Boston City, and Massachusetts General Hospitals, and in the British Hospitals as reported by Sir James Y. Simpson.*

## TRAUMATIC PRIMARY.

	NEW YORK HOSP.				PENNSYLV. HOSP.				BOSTON CITY HOSP.				MASS. GEN. HOSP.			
	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Should. joint	3	4	7	57.14	9	2	11	18.18	2	6	8	75.	7	8	15	53.33
Arm	14	14	28	50.	53	5	58	8.62	10	4	14	28.57	29	7	36	19.44
Forearm	8	2	10	20.	78	5	83	6.2	9	9	18	100.	22	7	29	24.13
Hip-joint	2	2	4	100.					2	2	4	100.	1	1	2	100.
Thigh	4	12	16	75.	14	10	24	41.66	6	15	21	71.42	34	25	59	42.37
Knee-joint													2	3	5	60.
Leg	10	7	17	41.17	51	32	83	38.55	11	7	18	35.88	63	33	96	34.37

## TRAUMATIC SECONDARY (After 24 hours).

	NEW YORK HOSP.				PENNSYLV. HOSP.				BOSTON CITY HOSP.				MASS. GEN. HOSP.			
	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Should. joint	2	2	4	50.	6	3	9	33.33	1	1	2	50.				
Arm	3	1	4	25.	7	4	11	36.36	3	5	8	62.50	5	3	8	37.50
Forearm	2	1	3	33.33					2	0	2	0.	10	2	12	16.66
Hip-joint																
Thigh	8	6	14	42.85	9	6	15	40.	1	3	4	75.00	9	9	18	60.00
Knee-joint																
Leg	9	2	11	18.18	12	15	27	55.55	5	2	7	28.57	34	18	52	34.61

# MASSACHUSETTS GENERAL HOSPITAL

1881

## PATHOLOGICAL.

	NEW YORK HOSP.				PENNSYLV. HOSP.				BOSTON CITY HOSP.				MASS. GEN. HOSP.				SIMPSON.			
	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Shoulder-joint	1	1	2	50.	1	1	2	0.	1	1	2	0.	8	3	11	27.27				
Arm	3	3	6	0.	3	3	6	25.00	4	1	5	20.	28	4	32	12.50	56	22	78	28.20
Forearm	5	2	7	28.57	6	1	7	0.	4	2	6	33.33	23	4	27	14.81	80	15	95	20.
Hip-joint													2	0	2	0.				
Thigh	15	6	21	28.57	28	9	37	24.32	12	4	16	25.00	128	34	162	20.95	392	239	631	37.87
Knee-joint													7	4	11	36.36				
Leg	12	4	16	25.	21	7	28	25.	6	1	7	14.28	104	15	119	12.60	194	89	283	31.45

## SUMMARY OF THREE PRECEDING TABLES.

	NEW YORK HOSP.				PENNSYLV. HOSP.				BOSTON CITY HOSP.				MASS. GEN. HOSP.				SIMPSON.			
	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Shoulder-joint	6	7	13	53.84	10	2	12	16.66	4	7	11	63.63	15	11	26	42.30	0	0	0	0
Arm	20	1	21	4.76	62	9	71	12.67	17	10	27	37.03	62	14	76	18.42	187	110	297	37.03
Forearm	15	5	20	25.	91	9	100.	9.	15	2	17	11.76	55	13	68	19.11	204	40	244	16.39
Hip-joint													2	1	3	33.33				
Thigh	27	24	51	47.05	51	25	76	32.89	19	22	41	53.65	168	68	236	28.81	500	435	935	46.52
Knee-joint													9	7	16	43.75				
Leg	31	13	44	29.54	84	54	138.	38.41	22	10	32	31.25	201	66	267	24.71	343	270	613	44.04

## STATISTICS FOR THE FOUR AMERICAN HOSPITALS.

### TRAUM. PRIMARY. TRAUM. SECONDARY. PATHOLOGICAL.

	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.	Recovered.	Died.	Total.	Ratio of Mortality.
Shoulder-joint	21	20	41	48.78	3	3	6	50.	11	4	15	26.66
Arm	108	16	122	13.11	17	12	29	41.37	38	6	44	15.78
Forearm	117	14	131	10.68	21	7	28	25.	38	8	46	17.39
Hip-joint		5	5	100.					2	0	2	0.00
Thigh	58	62	120	51.66	24	24	48	50.00	183	53	236	22.03
Knee-joint	2	3	5	60.00					7	4	11	36.36
Leg	135	79	214	36.91	60	37	97	38.14	143	27	170	15.88

In view of contradictory opinions which have been held as to the effect of Chloroform upon the final result of surgical operations, it may be interesting to examine the foregoing tables with a view to deciding it may be in some measure the effect produced by the use of Sulphuric Ether upon the mortality of operations. The dividing line is fixed at January 1st, 1847, that being the date from which the use of this anæsthetic became the established habit in the Massachusetts General Hospital.

			BEFORE ETHER.			AFTER ETHER.		
No. of Table.	Limb.	Subdivision.	Recovered.	Died.	Ratio of Mortality.	Recovered.	Died.	Ratio of Mortality.
5	Arm	Pathological	4	0	0.	24	4	14.28
6	Forearm	Traumatic Primary	2	0	0.	22	7	24.13
7	"	" Secondary	1	1	50.	11	1	8.33
8	"	Pathological	4	0	0.	19	4	17.39
10	Thigh	Traumatic Primary	3	3	50.	31	22	41.50
11	"	" Secondary	2	1	33.33	4	8	66.66
12	"	Pathological	26	7	21.21	102	26	20.31
15	Leg	Traumatic Primary	4	1	20.00	59	32	35.16
16	"	" Secondary	5	3	37.50	29	15	34.09
17	"	Pathological	20	1	5.	84	14	14.28
			71	17	19.31	385	133	25.67

At first view this would seem conclusive against the use of anæsthetics, but a moment's reflection renders the fallacy sufficiently obvious. A vast number of operations, especially in chronic or long-continued cases, are submitted to by patients and willingly undertaken by surgeons at the present day, owing to the entire immunity from pain and the diminished danger from shock, which previous to the discovery of anæsthesia would not have been tolerated. Among these many, as is well known, terminate in recovery which formerly were allowed to die unrelieved, the mortality then not being less, but only attributable to the disease and not to the operation. Furthermore, it must be remembered that improved methods of treatment restrict amputations more and more of late years to cases of the worst character, offering often at the best but a faint chance of preserving life.

In 1856 Dr. James Arnott presented statistics to prove that chloroform had increased the danger of operations, but these were contradicted by other observers. So many considerations interpose, that a *post hoc* cannot become a *propter hoc* argument in a matter involving so many qualifying circumstances. Finally, in deciding this point, the kind of anæsthetic employed must not be lost sight of. If the paralyzing effect of chloroform upon the heart be as great as is alleged, the use of sulphuric ether is assumed, at least on this side the water, to be comparatively harmless.

# REPORT OF THE COMMISSIONER OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION OF THE SENATE, PASSED MAY 11, 1892, RELATIVE TO THE LANDS BELONGING TO THE STATE.

ALBANY: J. B. LIPPINCOTT & COMPANY, PRINTERS, 1893.

THE COMMISSIONER OF THE LAND OFFICE, ALBANY, N. Y.

ALBANY, N. Y., JANUARY 1, 1893.

TO THE SENATE AND ASSEMBLY.

SIR: I have the honor to acknowledge the receipt of your letter of the 24th inst., and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

I am, Sir, very respectfully, your obedient servant,

JOHN B. LIPPINCOTT & COMPANY, PRINTERS, ALBANY, N. Y.

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JOHN B. LIPPINCOTT & COMPANY, PRINTERS, ALBANY, N. Y.

ALBANY, N. Y., JANUARY 1, 1893.

TO THE SENATE AND ASSEMBLY.

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